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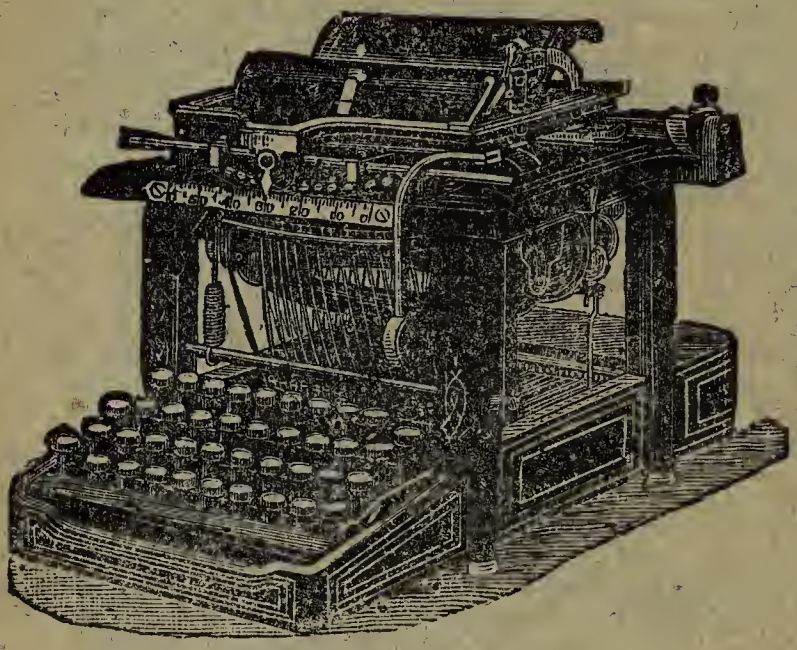

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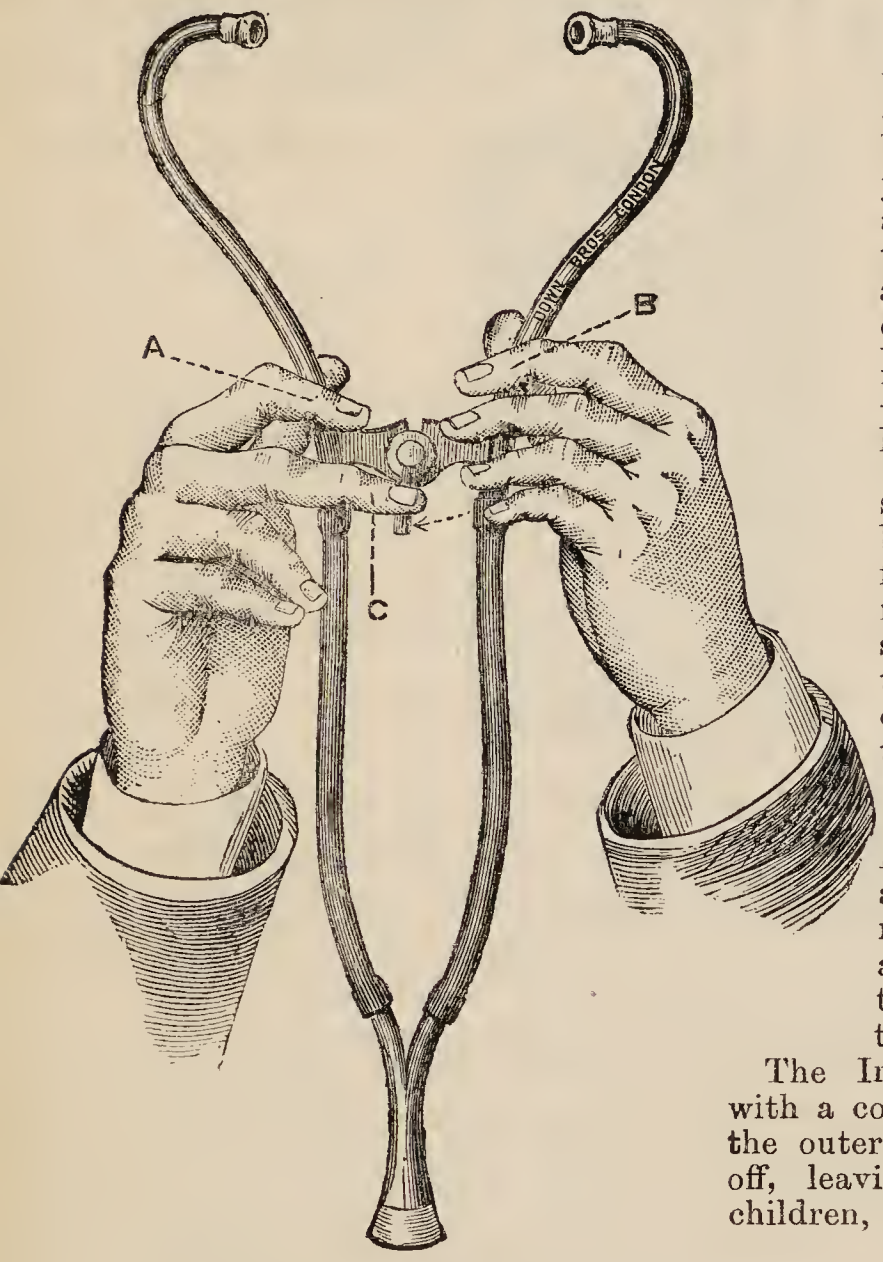

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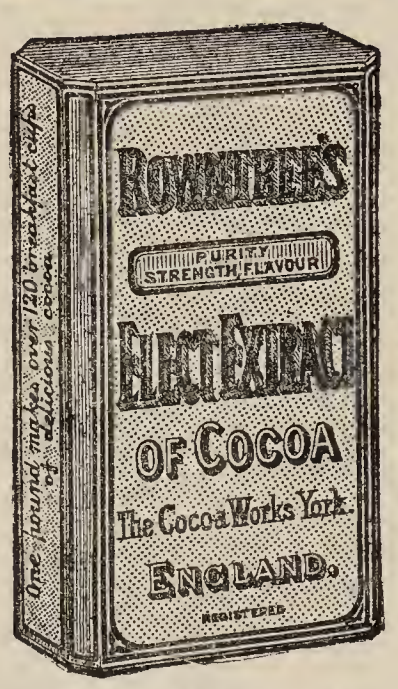

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Synopsis.

AN ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THIS VOLUME WITH OTHER SHORT ARTICLES FROM THE MEDICAL JOURNALS SHOWING THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS DURING THE HALF-YEAR.

ARRANGED ALPHABETICALLY.

GENERAL MEDICINE AND THERAPEUTICS.

ANTIPYRIN.—Its Employment in Pneumonia, Pertussis, Chorea, Rheumatism, and Persistent Urticaria.

Dr. S. H. Dessau, in the *Archives of Pædiatrics*, in discussing this subject, says that the only disease in which he has employed antipyrin as an antipyretic is pneumonia. In this he seldom resorts to it unless the temperature runs above 104° F. early in the attack, and there are symptoms of nervous irritation including a tendency to convulsive seizures. Besides the antipyretic effects, antipyrin allays the nervous disturbance when not given too freely. It should be given in 2½ to 5 grains, repeated every hour for four hours—once in 24 hours. He prefers to have it administered toward evening, to secure sleep, as the result of its sedative action. If sleep takes place before all the doses are given, the rest is withheld. He has had the most marked success with antipyrin in the treatment of chorea, and corroborates the evidence of Dr. H. C. Wood in regard to its value in this disease. He has used antipyrin in 7 cases of chorea, 2 being still under treatment. One was cured in 1 week, 2 in 3 weeks, 1 in 4 weeks, and 1, the most severe of all, in 6 weeks. One case had previously been treated for 2 months with arsenic, bromide of potash, iron and digitalis without improvement. The beneficial effects of antipyrin might be inferred on the grounds of the evidence of the close relationship of chorea and articular rheumatism. Antipyrin has already acquired firm recognition as a reliable remedy in the treatment of articular rheumatism. For the past two years he has depended entirely upon antipyrin in pertussis, and has seen no reason for changing his practice. There were 45 cases, two being complicated with catarrhal pneumonia. They all recovered in shorter periods, or the attacks lessened in number and severity, than cases under former plans of treatment. Urticaria, of the more persistent form, does better under antipyrin alone or in combination with rhubarb and soda, than any other treatment. (Journal American Med. Association, Nov. 29, p. 791.)

ARTIFICIAL FEEDING OF INFANTS.

A Card of Directions for.

[FRONT.]

1. Have ten nursing-bottles prepared clean every morning.
2. Take

Cream - - -	5 ozs.
Milk - - -	2½ ozs.

3. Put in skillet; add pancreatin powder; heat over alcohol flame for six minutes; stir and sip constantly; *do not overheat.*
4. Of this mixture, put in each bottle 6 drs. (to make 2-oz. bottle). Use funnel.
5. Add to each bottle 10 drs. sugar solution.
6. Stopper the mouth of each bottle with dry, baked cotton, and sterilize for twenty minutes.
7. Set aside to cool.
8. Before use, put bottle in the warming-cup; apply nipple immediately before giving it to infant.

Make sugar solution by dissolving 1 oz. sugar of milk (1 powder) in a pint of warm water.

[REVERSE.]

Age.	Interval.	Number of feedings in 24 hours.	Amount of food at each feeding.	Total amount in 24 hours.
1st week - - -	2 hours.	10	1 oz.	10 ozs.
2nd to 4th week	2 hours.	9	1½ oz.	13½ ozs.
2nd to 3rd month	3 hours.	6	3 ozs.	18 ozs.
3rd to 4th month	3 hours.	6	4 ozs.	24 ozs.
4th to 5th month	3 hours.	6	4—4½ ozs.	24—27 ozs.
6th month	3 hours.	6	5 ozs.	30 ozs.
8th month	3 hours.	6	6 ozs.	36 ozs.
10th month	3 hours.	5	8 ozs.	40 ozs.

* The pancreatin powder, for the quantity indicated on the card, consists of ℞. Pancreatin 2½ grains, bicarbonate of sodium 5 grains.

The sodium salt furnishes the alkalinity desired, so that lime-water may be dispensed with.

The objection urged against the partial predigestion of an infant's food, that, by so doing, one deprives the digestive jucies of their natural work, and thereby incurs the risk of atrophy of the digestive glands, while at first sight forcible, is in reality weak. If, by this method, the food-mixture is reduced to a condition in which there is about as much for the child's digestive powers to do as though it were fed on human milk there is no danger of abrogating any digestive function.

A few words as to the practical execution of the directions on the card in private practice—small matters, apparently, but they may mean the difference between failure and success. First, in regard to the sterilization. This is undoubtedly a burden to the child's attendant, which it should be the physician's care to make as light as possible. The best sterilizer, in my opinion, for convenience and efficiency, is the Arnold's steam cooker. It is easy, however, to devise some arrangement, in a family too poor to buy a sterilizer, that will answer the purpose. As to the bottles, they should be, according to the card, "prepared clean every morning." I have lately seen somewhere the advice to boil the nursing bottles for an hour every day. It reminded me of the excesses committed in the name of antiseptic obstetrics at a time when, in certain hospitals, the child emerged from the vagina under a carbolized spray. It is only necessary to clean the bottles with a strong soda solution and bottle-brush, and then rinse them out well in hot water. They and their contents are made sterile or chemically clean in the sterilizer at the same time. The bottles should be of a form that permits of easy cleansing; as far as possible from the shapes that are at present most in use. Rotch's bottles are the best in this respect upon the market, but their shape is awkward, and their price precludes the possibility of their general use. A drug firm is at present making for me a feeding-bottle which will have a wide mouth, almost no shoulder, no sharp angles, and shall be of moderate price. Very careful directions must be given in regard to the predigestion of the milk and cream. The time—six minutes—should be indicated by an open watch before the person who prepares the food; it should never be guesswork. The direction should be given never to let the preparation get hotter than one usually drinks the morning coffee. By the end of six minutes the mixture begins to have a distinctly bitter taste. It always takes a minute or two to distribute the milk and cream among the nursing-bottles; this should be done quickly and everything should be in readiness to begin the sterilization at once, for should the mixture in the skillet remain hot for ten minutes in all, it might be so bitter as to be unfit for use. The steam heat, of course, stops the digestion at once. It is well worth the trouble, in private practice, to conduct properly the whole procedure once before the child's caretakers. Finally, the nurse or mother must

be told to hold the child in the lap while it is fed and to make it consume some time, about ten minutes, in taking the bottle. This is a matter usually understood, but in some cases it needs the physician's express attention. In all cases it is essential to success. (Professor B. C. Hirst, Medical News, Jan. 31, 1891, p. 120.)

CREOLIN IN ERYSIPELAS AND ECZEMA.

Dr. Rothe (*Attenburg; Memorabilien*, 9; *British Journal of Dermatology*, Nov. 1890) has used in the treatment of erysipelas a creolin ointment containing creolin 1.5, cret. præp. axung porc., āā 15.0, ol. menth. pip. gtt. v. This is spread in the thickness of the blade of a knife over the diseased parts twice or three times a day, a thin layer of cotton wool being applied as a covering. In from twelve to twenty-four hours improvement was always apparent, and the disease was cured in three or four days. The same ointment also did good service in a case of weeping eczema of the face, as also in several cases of eczema in children. A patient suffering from scabies was treated with a thorough washing with soft soap and inunction of this ointment, with such a decided effect, that Dr. Rothe considers creolin to be undoubtedly a specific for the disease. (Supplement British Medical Journal, Dec. 13, p. 84.)

CREOLIN IN PURULENT OPHTHALMIA, APHTHÆ, AND OTHER DISEASES OF THE NEW-BORN.

In ten cases of purulent ophthalmia in the new-born, Schwing (*Arch. Ital. di Ped.*, 1890) used a one per cent. solution of creolin by irrigation. In two mild cases a cure resulted in six days. In the other eight it was used four or five weeks without satisfaction. A one or two per cent. solution of nitrate of silver was then used with better results. In eleven cases of muguet and aphthæ, chlorate of potash, hypermanganate of potash, and boric acid were used for a long time without satisfaction. A one-per-cent. solution of creolin was then used five or seven days and produced complete cure. In omphalitis in the new-born, pure creolin, in the form of an unguent, was followed by disappearance of all inflammation in four days. Creolin rubbed upon erysipelatous patches gave gratifying results. The following formula gave good results in acute gastro-enteritis in three to six days: Creolin, 2 to 3 drops; canella water, two and a half ounces; syrup, five drachms. For young infants a teaspoonful was given every hour. For larger infants give creolin, fifteen grains, white sugar, seventy-five grains. Divide into five or ten powders, and give one or two daily. In the surgical diseases of children asepsis of the surface and cavities of the body may be obtained with a one-half or one per cent. solution of creolin, and there need be no fear of toxic phenomena such as may follow the use of carbolic acid or sublimate. (American Journal of Medical Sciences, Dec. 1890, p. 649.)

DIABETES MELLITUS IN CHILDREN.

Stern (*Arch. Ital. di Ped.*, 1890) gives the records of 117 cases of this disease in children, found by the author, of which 75 were published prior to 1876. Since many cases are never reported, it can hardly be said that the disease is a very rare one. The disease was found to be more frequent in females in the ratio of 5 : 3. Among adults males are more frequently attacked. Six of the 117 cases were seized during the first year of life, the others between the first and fifteenth years. Heredity was an important etiological factor, neuropathic as well as diabetic tendencies in parents predisposing to the disease. Other etiological factors were Werlhoff's disease, measles, malarial fever, cold, typhoid, and the excessive use of sugar. There may be a traumatic origin, especially if blows have been received upon the head. The quantity of urine passed may range from 1500 to 4000 grammes daily. Albumin as well as sugar may be in the urine, and there may be a trace of acetone or aceto-acetic acid. In the cases analyzed there was little elevation of temperature. With some there was anæmia, with others eczema, furuncles, abscesses, caries of the teeth, labial herpes, lingual psoriasis, and scrofula. The hearing was sometimes affected, and there were several cases of cataract. Indigestion was not infrequent, but the heart and bloodvessels were seldom affected. In a number of cases death was preceded by diabetic coma. The duration in 35 cases varied between two days and five years. In 14 cases there was complete cure, in 7 improvement, in 4 no improvement, and in 52 the result was fatal. The treatment is mainly a matter of diet. The carbonates and salicylates may be beneficial, but there is no certainty in the matter. (American Journal of Medical Sciences, March, p. 328.)

DIAZO-REACTION (THE).—Its Clinical Value.

Rütimeyer (*Correspdbl. f. Schweitz. Aerzte*, 1890, 306) reviews somewhat of the present state of knowledge regarding the diazo-reaction, and particularly the claim made for it by Ehrlich. Ehrlich, namely, showed as a result of a large number of examinations, that the reaction is one of the most constant symptoms of typhoid fever after the first week; that when but little marked or not long persistent the disease would probably run a very light course; that its presence in pneumonia indicates the existence of complications, and that its appearance in phthisis is a most unpropitious symptom. Since the writings of Ehrlich several observers have reported long series of observations confirming his results, while others have come to different conclusions. Rütimeyer himself has made 2750 examinations of the urine of 260 patients with regard to the diazo-reaction. He has used exclusively the method of preparing the reagent recommended by Ehrlich. The solution should always be freshly made by adding to 200 c.cm. of

a saturated aqueous solution of sulphanilic acid, 10 c.cm. of pure hydrochloric acid, and 6 c.cm. of a one-half per cent. aqueous solution of chemically-pure sodium nitrite. If this solution be added to an equal volume of urine, and the mixture made alkaline with ammonia, a colour varying from bright rose to dark carmine will be produced—the diazo-reaction. A further characteristic of the reaction is that after from twelve to twenty-four hours a sediment forms whose upper layer varies from bright green to violet black. The author then analyzes his own observations, comparing them with those of others, and draws the following conclusions: 1. The diazo-reaction has great diagnostic value in typhoid fever, and is, with splenic enlargement and rose-coloured spots, one of the most constant and earliest evidences of the disease. 2. Febrile abdominal catarrhs never give this reaction. 3. If we have to do with a commencing illness which we conclude is typhoid fever, the diagnosis gains greatly in probability through the discovery of the diazo-reaction. If, on the other hand, the reaction is absent during the first and second weeks, the disease is not typhoid at all, or only a very light attack of it. 4. The reaction bears no fixed relation to the course of the fever. It is not disturbed by different drugs or methods of treatment. The morning and evening urine give, on an average, reactions of equal intensity. 5. If the reaction ceases to be present in the second or third week a speedy disappearance of fever, or a mild attack of the disease, may be counted on. If it persist a long time, a prolonged or severe course is probable. 6. A well-marked and persistent reaction gives no clue for differential prognosis as to a lethal termination or final recovery. 7. Relapses gave the reaction, almost without exception, if it had already disappeared. (American Journal, Oct. 1890, p. 405.)

DIURETIN.—Koritschoner's Clinical Experiments with. Koritschoner (*Boston Medical and Surgical Journal*, 1890) has recently made numerous clinical trials at the medical clinic of Professor Schrôtter, of Vienna, with the new diuretic *diuretin*, which is a mixture of sodium salicylate and theobromine. These experiments pertained to thirty-eight cases of general dropsy. Ten of these were cases of cardiac dropsy from chronic valvular disease; twelve cases were of dropsy from Bright's disease in some stage; in six the general anasarca was due to dilatation of the heart following emphysema or arterio-sclerosis; in four the cause of the dropsy was degeneration of the myocardium; in three it was hepatic cirrhosis; in two it was tuberculosis of the lung and serous membranes; and in one, cancer of the liver. The formula which Koritschoner uses is as follows: Salicylate of soda and theobromine ℥j to ℥ij; warm water ℥v.—M. Dose, a teaspoonful every hour or every two hours. Diuretin should be given in rather large doses—little benefit can be expected from a less quantity than four grammes (sixty grains)

a day; ordinarily, to get the full advantages of the drug, medium doses amounting to five or six, and maximum doses amounting to eight or ten grammes, in the twenty-four hours, should be administered. As a result of these trials by the Vienna physician, salicylate of soda and theobromine was found to be a very powerful diuretic, and in only five cases did it prove to be without action; these were cases of chronic Bright's disease, arterio-sclerosis with fatty myocardium, tuberculosis of the lungs and of serous membranes—all had arrived at the last degree of cachexia, and succumbed in a few days after their admission to the hospital. In ten other cases, the action of the salt was much superior to that of digitalis, acetate of potash, and all other diuretics that had been administered, though but moderate benefit followed the administration of the remedy. In the majority of the patients (twenty-three out of thirty-eight) the effect obtained was excellent, the dropsical effusions rapidly disappeared, and general amelioration followed. There is some danger under the abundant diuresis caused by the drug, the ascites and œdema may disappear so rapidly as to cause dangerous collapse. On this account, Koritschoner urges that in cases of abundant effusions the remedy should be given with caution; he would, in fact, advise always to begin the treatment by a dosage of one drachm a day, and if this quantity makes no sensible increase in the urine, it may be augmented by fifteen grains a day till a sufficient result is obtained. The new drug has not as yet—as far as we have been able to ascertain—been much introduced into this country, and as theobromine is very expensive, and as the cost of a drug is an important item in the economies of many physicians and their patients, it is doubtful whether many serious trials will be made with diuretin for some time to come. (Americal Journal, Dec. 1890, p. 619.)

EXALGINE.—Toxic Effects of.

Dr. Edmund Falk (*Therap. Monatsh.*, August, 1890) says exalgine as methyl-acetanilide (that is, as methyl-antifebrin) is an antipyretic, but its effects in this direction do not appear unless it is given in unsafe doses. As an analgesic it acts in much smaller doses. Amongst the by-effects which attended it as an analgesic are the following:—Sweating, but this is not common with careful dosing (3 to 6 grains). More frequent is giddiness, which appears in a number of cases in from a quarter to half an hour from the administration; this symptom may amount to a sense of drunkenness, with swimming in the head and noises in the ears. In Bokenham and Jones's case there was darkening of vision, and later delirium and loss of consciousness. Convulsions occurred in Hepp's case of phthisis in which 4.5 + 7.5 grains were administered. Disturbances of digestion, epigastric discomfort, nausea and vomiting are rare. Blood changes have not

been witnessed in man, but in animals there has been diminution of oxyhæmoglobin. Of rashes there have been observed only erythemata. Prevost counsels great caution in using this aniline derivative, which, as such, may easily damage the blood. He, as well as Heinz, and Dujardin-Beaumetz and Bardet, considers fever to be a contraindication. (Supp. British Med. Jour., Oct. 11, p. 15.)

GRAVES'S DISEASE.—Graefe's Lid Sign in.

At the Ophthalmological Society, on Oct. 16, 1890, Dr. Sharkey read a paper based upon the results of an investigation he had made in his out-patient room at St. Thomas's Hospital upon 613 cases. He said: The questions I set myself to answer were:—1. What views do others hold as to the value of the lid sign? as a matter of fact, is it always present in Graves's disease? 2. Is it always absent in health and in other diseases? In reply to the first question, reference to the literature of the subject showed that Graefe himself in 1864, describing the sign as the absence of correspondence between the movement of the lid and the elevation and lowering of the visual plane, considered it pathognomonic, and so particularly important in the earliest stages of the affection. Subsequent writers have recognised the importance of the symptom, but do not consider it pathognomonic. My own experience is that it is often absent in Graves's disease. But is it always absent in health and in other diseases? No one seems ever to have deliberately set about answering this question. And yet on an answer to it mainly depends the importance of the symptom. Among the 613 cases of diseases of all kinds examined, 12, or a little less than 2 per cent., presented it well marked. Many others had it so long as they stared at the object held before them; and it was difficult to prevent them from doing so. A large proportion of healthy people can voluntarily produce the lid sign in themselves by staring. Inasmuch, then, as Graefe's lid sign is far from always present in undoubted cases of Graves's disease, and is often very well marked in others who certainly have not Graves's disease, it cannot be considered very valuable as a diagnostic sign. What is the cause of Graefe's lid sign? It is clear that there is overaction of the muscles which raise the lid, namely, the levator palpebræ, supplied by the third nerve, and the unstriped muscle of the lid supplied by the sympathetic. Remak showed that irritation of the sympathetic produced elevation and retraction of the upper lid; and the fact that one can voluntarily produce this shows that it can likewise be effected through the third cranial nerve. Constant active spasm rarely results from irritation, though intermittent spasm may. Prolonged spasm most frequently owes its origin to paralysis or weakening of opposing muscles. Is there evidence in Graves's disease of a weakening of the muscles which close the eyes? Stellwag has shown that a very constant symptom of the disease is

diminished frequency and incompleteness of the involuntary closure of the lids, which goes on so continuously in health. The orbicularis palpebrarum, which effects this movement, and is the opponent of the muscles which raise the lid, being weakened in Graves's disease, and losing tone by inaction, the healthy equilibrium of the muscles of the eye is lost, the opening overpowering the closing muscles, and producing retraction of the upper lid and Graefe's sign. Thus the infrequency of winking, which Stellwag refers to disease of the centre, is the primary result of disease, and retraction of the lids and Graefe's sign follow as a consequence. This appears to me to be the most satisfactory explanation of the lid sign. (British Med. Journal, Oct. 25, p. 959.)

ICHTHYOL.—To Mask its Odour.

The *Pharmaceutische Zeitung* recommends the addition of 10 per cent. of oil of citronella. The addition is said to be harmless in any case, while in rheumatism it is claimed that it will be positively beneficial. In India the oil is used to a considerable extent as a remedy in rheumatism, and, it is declared, with very good results. (Journal American Medical Association, Oct. 18, p. 586.)

IODINE FOR VOMITING.

Iodine is useful to relieve the vomiting of pregnancy and also other forms of this distressing symptom, including that accompanying alcoholic gastritis (*Correspondenzblatt Schweizer Aerzte*). Ten drops of the tincture in four ounces of water, one-third of this after each meal, is the usual dose. It sometimes causes a pleasant sensation of warmth in the stomach which may last twenty or twenty-five minutes. (American Journal, Jan. 1891, p. 72.)

LEVULOSE FERRIDE.

The preparation known as levulose ferride is one which takes the place of a well-known and popular German product, called *Eisenzucker* (iron-sugar), very extensively used in domestic practice. I was led to the employment of iron-sugar on account of its palatability, fastidious patients and children making no objections to it; but this has been supplanted by levulose ferride, which in the form of tablet triturates will be taken as readily as chocolate bon-bons. It is readily soluble in an excess of water, and practically free from any ferruginous taste or styptic effect when dissolved in the mouth, and is substantially a peptonate. The method of preparing it is briefly as follows: To a certain amount of iron a measured quantity of malt sugar (maltose) is added, and the mixture constantly stirred while exposed on a water-bath. While it possesses all desirable qualities, the presence of metallic iron may be determined by chemical analysis, the strength of the product being about three per cent. The administration of the remedy may be confined to the use of the powder, which is taken dry on the tongue, dissolved

in water or coffee; or it will be found more convenient in the form of tablets, each containing three or five grains. The dose for children ranges from three to ten grains, and for adults from five to thirty grains. (Dr. John Aulde, Philadelphia, New York Medical Record, Oct. 11, p. 403.)

MEDICINAL SOAPS.—Some New Forms of.

Eichhoff of Elberfeld (*Volkmann's Sammlung Klinischer Vorträge*, No. 4, Juli 1890), who has already added to the list of medicinal soaps some of real value, and embodying some valuable improvements, has continued his researches into the subject. He reviews the conditions of the skin in which soap treatment is to be recommended. This is specially indicated in cases where the skin is unctuous. The soap removes the excess of fat, while the incorporated drug, if suitably chosen, acts at the same time on the disease itself, and, as Eichhoff thinks, can chase the offending organisms from the ducts of the cutaneous glands. He quotes in support of this the treatment by medicinal soaps of psoriasis, which he regards as parasitic, and of acne, the pustules in which are now believed to be due to the pyogenic micrococci. He praises also the cleanliness, the innocuousness, and the cheapness of this method with the vigour of a true partizan. Soaps may be divided into—1. Alkaline, containing an excess of free alkali. 2. Neutral, in which all the alkali is combined with the fatty acids. 3. So-called acid soaps, which are prepared either by the addition of weak acids, or by being superfatted, and eventually react faintly acid. The alkaline may be used to remove masses of scales; while in acute inflammations of the skin, or when it is irritable, the neutral or superfatted soaps are to be employed. The superfatting of the new soaps consists of 2% lanoline and 3% olive oil, and they are made by Ferdinand Mühlens at Cologne. Among these new soaps may be specially mentioned a *menthol soap*, containing 5% of menthol. The local anæsthetic influence of menthol on the skin is well known, and the principal use of this soap will probably be found in lessening pruritus. Eichhoff cites some cases where cure resulted in pruritus senilis and pruritus genitalium. He recommends that should the soap be employed for the head or face, the eyes should be kept firmly shut, else an unpleasant, though, he says, not dangerous, coldness of the conjunctiva is perceived. A 5% *salol* soap is one which may prove useful in psoriasis. The salol when so used with water breaks up into carbolic and salicylic acids, and these in their nascent condition may be expected to act with energy. A 5% *resorcin* soap promises to be of advantage in cases where this valuable drug is indicated. (Edinburgh Med. Jour., Feb. 1891, p. 769.)

MILK.—The Effects of Sterilization upon.

The following is an epitome of the ascertained results of sterilization:—1. Albumin coagulated. 2. Casein less readily precipitated

by rennet than in normal milk. Acid corrects this condition. 3. Fat is freed to a slight extent; fat not freed has a lessened tendency to coalesce. 4. Sugar undergoes some change, as shown by its lessened dextro-rotatory power.

The considerations suggested by a knowledge of the foregoing facts are: (1) The coagulation of milk-albumin by sterilization may render the milk more difficult of digestion. (2) Sterilization interferes with the coagulability of milk by rennet, and presumably, therefore, with its digestibility by the gastric juice. (3) Free fat, as found in sterilized milk, is probably not readily assimilated in infant-food. The fat not free, being enclosed in a less-easily destructible envelope, is probably slow of digestion. (Prof. Hirst, Pennsylvania, Medical News, Jan. 31, p. 119.)

[See also articles on "Sterilized Milk" in *Retrospect,* vol. cii, page 12; and at pages 3 and 16 of the present volume.]

MULTIPLE ABSCESS IN NURSING INFANTS.

According to Couder (*Archives of Pædiatrics,* Oct. 1890), Bouchut was the first to make a study of this disease, and he believed it to be due either to conditions of the puerperal state, to syphilis, or to scrofula. Syphilitic abscesses should be regarded as merely softened gummata, and scrofulous abscesses are usually of tubercular origin. Couder cannot believe that all other cases are attributable to the puerperal state, and considers that there are others of unknown origin. Among the latter cases should be included those in which the mothers of the patients suffer from inflammation of the milk-ducts, pus being withdrawn by the infant in the act of nursing. Such cases may be considered instances of benign purulent infection, and the condition is an indication for withholding the breast from the child. Abscess may also occur through infection of the umbilicus, hence in all cases the infant's umbilicus as well as the mother's breasts should be treated antiseptically. (Medical News, Oct. 18, p. 400.)

MYXŒDEMA AND CRETINISM.

Bircher (*Sammlung klinische Vorträge,* No. 357) believes that the secondary symptoms of myxœdema, namely, hypertrophy of the left ventricle, pallor of the skin, slow pulse, œdema, serous effusions, &c., are dependent upon the associated endarteritis, hepatitis, and nephritis, and that the latter are probably due to alterations of the kidneys. The nutritive fluids are changed, the blood is watery, the number of red corpuscles is diminished, and mucin is deposited in the tissues. The primary cause of all the symptoms is atrophy of the thyroid gland; after total extirpation also a symptom-complex appears which resembles myxœdema in every particular. This operation-myxœdema begins with more severe symptoms, and runs its course more rapidly than the atrophic myxœdema. The thyroid gland seems to be necessary to life, and, according to the author,

apparently prevents the formation of mucin in the tissues, a function that cannot be assumed by other glands. If in a dog the thyroid is extirpated from the neck and the thyroid of another dog is implanted in the peritoneal cavity the animal will live, whereas if there is no implantation of the thyroid the dog will die. It is also possible that the gland, situated in whatever part of the body, supplies the organism with necessary fluids. Bircher then describes the symptoms following total extirpation of the thyroid for goitre, as seen in five women. In three cases, soon after extirpation, serious symptoms of myxœdema became apparent but spontaneously disappeared. The fourth patient died with epileptiform convulsions soon after the operation. The fourth patient was a cretin, and after the extirpation the characteristic cachexia and tetanic and epileptiform symptoms appeared. Implantation of a piece of thyroid gland in the peritoneal cavity was followed by an improvement of all the symptoms, which, however, was only temporary. After a second implantation there was improvement again which continued, and the patient is now—three months after the implantation—well and able to work. The author believes that the cretinoid degeneration is an infectious disease, the germs of which are found in drinking-water. Of its symptoms the most important and constant are hypertrophy of the thyroid and arrested growth of the bones, particularly those of the skull. There are three forms of the disease, namely, endemic goitre, the least serious; endemic deaf-mutism; and endemic cretinism (idiocy), the most serious. The author concludes his paper with the following propositions: (1) Myxœdema is a sporadic disease resulting from the loss of function on the removal of the thyroid and is a dyscrasia that chiefly affects the growing organism. (2) Cretinism is an endemic disease caused by long-continued infection, which causes hypertrophy of the thyroid, and if occurring during body-growth causes irreparable arrest of development. (Medical News, Nov. 8, p. 482.)

PAGET'S DISEASE OF NIPPLE.—Note on Diagnosis of. Macallum has (*Canadian Practitioner*, Oct. 16, 1890) been able, by examination of sections and crusts from Paget's disease, to confirm the importance of the so-called psorospermiæ to which Darier and Wickham have called attention. Until the nature of these bodies is better known, the writer suggests the name "endocyte." The diagnosis may, therefore, be made in this disease in the earliest stages by the help of the microscope. In the examination of the crust the following method, which gives a permanent preparation, was employed: The crust, or a portion scraped from the nipple, was teased out in a drop of tincture of iodine on the slide, the cover-glass put on, and, after a couple of minutes, a drop of 50 per cent. glycerine run in. The alcohol and the iodine fix the endocytes, and the iodine gives them a brown-yellow tint, which fades slowly in glycerine. (American Journal, Feb. 1891, p. 204.)

PEROXIDE OF HYDROGEN.—Its Local Use for Ulceration and Purulent Exudation.

In 1862 I recommended the use of the peroxide for external application in cases of surface decomposition, ulceration, and purulent exudation. I have to emphasise this use. I will name one case alone in illustration. I was called to see a gentleman advanced in life who was suffering from moist senile gangrene of the foot. The extremity was so offensive and the separation so slow, although there was a fair line of separation, that the management was most distressing. I had the foot wrapped in cotton-wool holding peroxide solution slightly acidulated with dilute hydrochloric acid. The offensive odour was at once removed, and the process of separation went on rapidly; the foot soon fell off, leaving an excellent healing surface. The patient lived many years afterwards in fair health, and died at last of mere old age. (Dr. B. W. Richardson, Lancet, March 28, 1891, p. 709.)

POISONOUS SPIDER (A).

Mr. Andrew Ross, M.P., practising in New South Wales, writes:—"It has generally been supposed that spiders are very harmless insects, and totally void of any dangerous or poisonous effects; but the history of the following remarkable case tends to establish quite a contrary opinion. About 6 o'clock in the evening of Jan. 24th, a boy of about five years of age was sitting on the doorstep eating some bread-and-butter, when all of a sudden he cried out and complained to his mother that something had bitten him on the neck behind the lobe of the ear. The boy at once pulled his hat off his head and threw it on the ground, and the mother, on picking it up to see if anything was inside, dislodged a large black spider with a large round belly and red spot on the back, which she instantly killed. The boy said the spider had bitten him, and very shortly after he commenced to scream with pains in his neck and also running down his legs and feet. He was brought to my surgery, and on examining the neck I found a large erythematous circle at the spot where the spider was supposed to have bitten him, which I scarified and bathed with the usual remedies. I administered ammonia and brandy, but the child continued to scream with pain. The case continued under my care for a week, and is one of so singular and remarkable a character, and surrounded with symptoms and sufferings so amazingly violent and peculiar, that I deem it my duty to lay the full history of the case before the public as a warning to beware of such supposed innocuous insects." (Lancet, May 2, 1891.)

PSOROSPERMS AND CANCER.

Psorosperms have been found by Darier, Wickham, and others, in that peculiar form of epithelioma of the nipple known as Paget's disease; and Darier further states that Malassez, in

1876, " noticed in a large number of epithelial tumours, cellular bodies, granular or refracting, sometimes encapsuled, which presented certain analogies to the psorosperms of the rabbit," and that Cornil has reported having seen analogous organisms in certain cancers of the uterus. It has been recognised for some time that cancer is occasionally communicated from one person to another, which, to a certain degree, sustains the parasitic origin of the disease. The recognition of the causation of pus by the various forms of micrococci has been prolific of good in surgery; the discovery of the bacillus in tuberculosis is working beneficially in the direction of the prevention of the spread of that disease, and may yield results in regard to treatment; and if it should be fully and positively determined that cancer is due to the presence of psorosperms, may we not hope for more rapid progress in its prevention and treatment than has hitherto been attained? (Dr. L. D. Bulkley, Medical News, Nov. 8, p. 467.)

[See also Dr. Bulkley's remarks on a Case of Psorospermosis Cutis at page 354 of this volume of the *Retrospect.*]

PYOCTANIN.—Use in Treatment of Malignant Tumours, &c. At the last meeting of the Vienna Society of Physicians Professor Mosetig showed two cases of malignant tumours (sarcoma) which had been treated successfully by him some months ago with pyoctanin. In one of them, the patient being fifty years old, the sarcoma was situated in the inguinal region, and was considerably shrunken after repeated injections of solutions of pyoctanin into the tumour and its neighbourhood. The solutions were prepared from Merck's pyoctanin in the strength of 1 in 300 and 1 in 500 of water respectively. The lecturer said that he had made some years ago experiments with injections of solutions of carmine into malignant tumours, and later with aniline dyes, based on the idea that the further growth of the tumour might be prevented by the change excited in its histological elements by the staining reagent. It is probable that Stilling's experiments with pyoctanin in suppuration induced Mosetig to try this preparation in the treatment of new growths. In the discussion that followed, it was stated by Professors Reuss, Neudoerfer, and Lang that they had observed favourable results from the application of pyoctanin to suppurating surfaces. Neudoerfer said that he had under his treatment a case of ulcerating cancer of the breast, which became smaller after the use of pyoctanin poultices; and Lang has obtained favourable results in cases of cystitis and pyelitis, when the pyoctanin was also administered internally. It will be remembered that soon after Stilling's first publications, when his therapeutical experiments had been repeated by other workers, a series of papers were published in which the statements of Stilling with regard to the curative action of pyoctanin were very much disputed, and that they had

been confirmed by but few observers. It seems to me that the treatment was not suitable for all the cases in which it was tried, and that the difference of opinions may also be due to the circumstance that solutions of pyoctanin are very liable to precipitation. Concerning the treatment of tumours with injections of pyoctanin, it is probable that such injections may act in a twofold manner; at first even injections of indifferent liquids (distilled water), when frequently repeated under aseptic precautions, may restrain the growth of the tumours by mechanical pressure on the histological elements and so lessening the vital activity of the cells by imbibition; secondly, the dyes contained in the solutions may exert a special action on the cell nuclei, which in selecting the particles of the dye may conceivably become less active, and even lose their property of cell division. On this ground it would seem advisable to try also injections of solutions of gelatine, collodium, &c., for the treatment of such tumours, as they would exert a more lasting mechanical effect; or, if dyes should be injected, those materials should be selected the particles of which are of greater weight—e.g., hæmatoxylin and the alizarin dyes, where the stain could be fixed by subsequent injection of an innocuous mordant. At the same time it must be remembered that any histological dye, when injected into the tissue, indirectly affects the vitality of the intima of the bloodvessels and of the lymphatics, so that local thromboses may occur and perhaps exert a beneficial effect. As the growth of the tumour takes place from the apparently healthy tissues in the vicinity, the injections should be made into them. It is to be hoped, also, that when the question of treating malignant tumours by the new method is taken up the histological aspect of the question will also be fully considered, and that histologists will not content themselves with preparing only small pieces of the morbid tissue, which only exhibit the complex structure of the tumour with its secondary changes, but will prepare a continuous series of specimens, in which the whole development of the tumour may be studied. In addition to the local treatment of malignant tumours, it will be certainly necessary to endeavour by general measures to prevent the occurrence of relapses and metastases. (Berlin Correspondent of Lancet, Feb. 7, 1891, p. 344.)

SALOL COLLODION.

It is recommended to dissolve four parts of salol in four parts of ether, and then add it to thirty parts of collodion. It is said that the application of the salol collodion to the affected parts in acute rheumatism will be followed by rapid relief of pain. (*Therapeutic Gazette*, No. 8, 1890.) If collodion is applied to a joint it is well not to have it go completely around the limb, as collodion contracts strongly on drying, and might cause too much constriction. (Editor American Journal of Medical Sciences, Feb. 1891, p. 180.)

STERILIZED MILK.—Its Use in Nourishing Children.

In an article on this subject Eisenberg states that (*Jahrb. f. Kinderh.*, xxxi. 1 and 2) a danger in the use of animal milk for the nourishment of children consists in the fact that unless it is taken by the child immediately after being drawn from the udder of the animal it will contain germs which are the result of decomposition and fermentation. Pasteur showed that the decomposition of milk is effected by germs which exist in the air, and that these germs possess activity to a marked degree. Hueppe showed that there were two varieties of such germs—acid-forming and lab-forming, and that perfect sterilization could easily be accomplished. Soxhlet devised an apparatus by which a given quantity of milk could be reduced to a proper consistency by boiling in a water bath for forty minutes. Hochsinger devised a plan for sterilizing milk for infants on a large scale, and it can now be obtained in the shops thus prepared. By the author's method of sterilizing milk for family use, a suitable metallic frame with places for twelve bottles is provided. These bottles being graduated in cubic centimetres, the milk may easily be reduced to the desired consistency. The bottles are provided with stoppers which seal them hermetically, and are to be boiled in a water-bath for thirty minutes. The nipple must be adjusted to the bottle immediately before it is to be used. After use the bottles should always be washed out with soda, sand, and water. (American Journal, March, 1891, p. 326.)

[See also an article on "Some New Milk Sterilisers for Domestic Use," by Dr. Ashby, with illustrations, at p. 147 of this volume of the *Retrospect.*]

SULPHONAL.—Fatal Case of Poisoning by.

About 9 a.m. on October 6th, my principal (Dr. J. C. Clarke) and myself were called to see a gentleman who was stated to have taken an overdose of sulphonal, which drug he had been taking for a short time to produce sleep. On arriving at the house, we found the patient in a state of stupor, from which, however, he could be partially roused. There were two empty one-ounce bottles of sulphonal on a table close to his bedside, one of which had been quite full on the previous evening, while the other had been almost empty, so that he must have taken rather more than an ounce of the drug. The stupor gradually deepened into complete insensibility and anæsthesia; the pupils remained normal and reacted to light; the conjunctiva became insensible to the touch; and the anæsthesia became so complete as to prevent him swallowing. He lay on his side, breathing slowly and regularly, but there never was any stertorous breathing; his pulse was for the most part slow, but sometimes rose as high as 90 per minute; his temperature ranged between 100° and 102°, 103° being the highest registered. His body was bathed in a profuse perspiration. There was total sup-

pression of urine after the evening of the first day. He remained in this state until 3 o'clock on the morning of October 9th, when his breathing suddenly became short and jerky, and then stopped altogether, he having remained totally insensible from Monday morning until his death on Thursday morning. The treatment consisted in applying warmth and using the stomach-pump in the first instance, and subsequently in administering enemata of brandy, eggs, and beef-tea, together with hypodermic injections of brandy and of strychnine. The case is of interest, being, as far as I know, the only recorded case of death resulting from an overdose of this drug. (W. H. E. Knaggs, M.B., Morley, British Medical Journal, Oct. 25, p. 955.)

SULPHONAL.—A New Mode of Exhibiting.

Unquestionably the great disadvantage of sulphonal over other recently-introduced hypnotics is its insolubility and consequent slowness of action. As ordinarily administered, dry upon the tongue, or suspended in mucilage, &c., the result, in most cases, is unsatisfactory. Even after a decided dose hours often elapse before sleep is obtained, and, usually, a condition of very annoying semi-somnolence is maintained throughout the greater part of the subsequent day. Unpleasant effects of this sort are so frequent that many physicians are deterred from prescribing what has proved in my hands the most satisfactory of the newer hypnotics. These effects obtain because of the very slow diffusion of the drug when taken in a state of simple suspension, the whole amount not entering the circulation for many hours after its ingestion. I desire to call attention to a more satisfactory mode of administering sulphonal; a method that occurred to me when having occasion to take the drug a year or more ago, and one which has subsequently afforded me results in practice not in the least obtainable by its use in the common way. My method is as follows: I direct that just before retiring the sulphonal powder be well stirred in a glass two-thirds full of boiling water (about six fluid-ounces) until entirely dissolved. The water must be boiling, and to insure that it is at the boiling-point when brought in contact with the sulphonal, it had better be heated on the spot. It can be boiled in a tin-cup over the gas, or over a spirit-lamp. After the sulphonal has entered into solution, which will occur in a moment or two if it be well-stirred, cold water may be very cautiously added to reduce the liquid to a drinkable temperature, which, if the patient is accustomed to taking hot fluids, *will be one not sufficient to cause the slightest precipitation of the drug;* or the hot solution of sulphonal may be permitted to cool to this temperature, the cooling process being facilitated by continued stirring. To insure success the sulphonal must be taken *wholly dissolved*, and the hotter the solution is drunk the better. It is surprising to one accustomed to prescribing this hypnotic in suspension several hours before bedtime, to allow for what has been

called the period of therapeutic incubation, to note the prompt and satisfactory result of this simple manœuvre. The hot solution dilates the gastric vessels and stimulates them to rapid absorption, so that diffusion takes place from the stomach probably before slight or any precipitation of the drug occurs; entirely unlike the result that follows when the sulphonal is ingested in a state of simple suspension. In the latter case gastric absorption can scarcely occur, and hours are perhaps consumed before the whole amount taken enters the blood. The period of therapeutic incubation is practically done away with. Sleep results in most cases in a very few moments, and seems to be more profound and dreamless than that from a larger dose taken in the ordinary way, and the annoying condition of drowsiness usually present on the subsequent day is scarcely felt if the dose be properly graduated. The hot solution, which has a slightly unpleasant taste from the dissolved sulphonal, may be rendered decidedly palatable by the addition of a tablespoonful of some such *liqueur* as *crême de menthe* ("green mint"), which, apart from its efficiency in this direction, will probably tend to promote still more rapid absorption of the drug. To obtain an immediate and altogether satisfactory result from this method it is desirable that the stomach be empty or at least comparatively free from food, so that precipitation be not favoured and absorption delayed by the entanglement of particles of sulphonal and undigested food, but as it is unnecessary to take the dose until the retiring hour there will usually be no difficulty from this. (Dr. D. D. Stewart, Jefferson Med. College, Philadelphia, Medical News, Jan. 1891, p. 132.)

TYPHOID FEVER.—Cold Bath Treatment.

[In the *Practitioner* for March, 1891, there appears a contribution from Dr. F. E. Hare, Resident Medical Officer to the Brisbane Hospital, Queensland, which will go far towards establishing the advantages of Brand's method of treatment. Dr. Hare's paper deals with two periods of treatment for the purposes of comparison. During the first period from August 1st, 1885, to December 31st, 1886, the treatment was expectant, but towards the end of this time quinine was rather freely administered in antipyretic doses. Not more than two or three cases were bathed, but cold sponging was frequently used, and the cold wet sheet not uncommonly in cases with persistent high temperature. The results obtained during the above mentioned sixteen months were as follows: Cases admitted, 586; died, 85; percentage mortality, 14·50. It was found that 14·82 was the percentage mortality over the series of years 1882-1886, so that the death rate indicated fairly accurately the results of ordinary hospital treatment.

In order to place in bold relief the effects of the cold bath treatment, it was decided to introduce it suddenly at a certain date. Jan. 1, 1887, was selected for this purpose. From that date down to Dec. 31, 1889, every case admitted which required it had

been submitted to a systematic course of cold bathing according to Brand's rule, which is briefly—a cold bath (68° F.) of about 15 minutes' duration, every three hours, day and night, should the rectal temperature reach 102·2° F. (mild cases escape bathing in a considerable number, because the temperature never reaches this height). The results of the three years were as follows: Cases admitted, 1173; died, 92; percentage mortality, 7·84. All possible sources of fallacy are met and discussed at length in Dr. Hare's paper, which should be read at length by all interested in the treatment of typhoid fever. We can reproduce here only Dr. Hare's conclusions, which are—"(1) That, by means of the bath-treatment systematically employed, the hospital death rate of typhoid may be greatly reduced. (2) That the reduction should amount to 50 per cent. on the previous death-rate; and that the percentage mortality to admissions should not be over 8 per cent. (always supposing the term *typhoid* to be used in its second degree of extension). (3) That this result may be obtained in spite of the fact that many of the cases are unsuited to the treatment; and that much more might be expected in appropriate cases only. (4) That the success is in proportion as the treatment is begun early in the disease. (5) That, as evidenced by the undiminished occurrence of perforation and hemorrhage, and by the fact that early admission has failed to render them less frequent, the treatment has no influence on the depth of the ulceration. (6) That, since a constant percentage (about $4\frac{1}{4}$) of the cases admitted die from these accidents, no reduction in the general mortality much below 5 per cent. can be expected from the treatment, even were it possible to ensure every case being admitted under the most favourable circumstances. (7) That as the result of the different liability of the sexes to these accidents, the prognosis under the bath-treatment is vastly more favourable in females than in males. For instance, in any two given cases, *cæteris paribus* and without reference to the date of fever on admission, the danger to life is but little more than half in the case of the former; while if both are admitted during the first week of the fever, this is reduced to one quarter. (8) That on the whole the lethal influence of the intestinal lesion is diminished; that the treatment effects this (*a*) directly, by moderating diarrhœa, and (*b*) indirectly, by sustaining the powers of the patient, and thereby enabling him to recover from the effects of the hemorrhage and other not necessarily fatal intestinal conditions. (9) That the vast bulk of the reduction in mortality is due to the prevention of those complications and modes of death which, being more or less common to the febrile state, however induced, have been termed pyrexial. Thus (*a*) fatal pneumonia has been less than one-fourth as frequent, this being chiefly due to the rarity of the bronchial form; (*b*) brain complications have been less fatal, and brain symptoms (delirium, stupor, &c.), enormously

reduced in frequency; while (*c*) it is no exaggeration to say that simple cardiac failure would have been practically expunged from the list had all the cases admitted come under treatment during the first week of the disease." (Dr. F. E. Hare, Brisbane, Practitioner, March 1891, p. 182.)

URÆMIA.—Use of Morphine in.

I have more than once drawn attention to the great value of morphine, when hypodermically injected, in those cases of uræmia where dilatation of the pupils is a marked feature. There is nothing very new in the suggestion that morphia should be employed in uræmia. But unfortunately the recommendation for its employment was a general one, instead of one carefully hedged round with safeguards as to the kind of case likely to be benefited by it. Hence its application in America, where alone the suggestion found great favour, was too indiscriminate, with the result that death was more than once *reported* to have followed, and discredit to have attached to the treatment in consequence. Now, however, that it is proved that the organic poisons eliminated by the kidneys are very various in character; that several of them are physiological antagonists, some, for example, being pupil contractors and others pupil dilators, and that sometimes those resembling atropine, and at others (and, it must be admitted, much more frequently) those resembling morphine, in their general effects, prevail, we are not left without a clear indication as to when to employ one or other of those drugs. If the patient is delirious, has dilated pupils, and a dry skin, and presents generally the appearance of one who has been poisoned by belladonna, morphine should unhesitatingly and largely be injected. But if, as is so often the case, he is snoring away his life, while the contracted pupils and sweating skin point to opium-like effects, no one probably would dream of using morphine. (Dr. William Carter, Liverpool Medico-Chirurgical Journal, Jan. 1891, p. 162.)

WEIL'S DISEASE.

Weiss (*Centralbl. f. klin. Med.*, 1890, No. 38, 688) defines this disease as a suddenly-developing, acute, febrile affection, arising without discernible cause, accompanied by icterus, swelling of the liver and spleen, and renal and severe nervous symptoms, and running a short and favourable course. He reviews the cases which have been already reported, many of which he feels obliged to consider as not genuine examples of the disorder. He then reports a number of cases recently treated by him, as well as a large number of others which came under his observation in a small epidemic in 1866, and which he published under the title of "Infectious Icterus" before Weil's observations were made. As French authors also described it before Weil, he suggests that it be designated "*Typhus biliosus nostras.*" The symptoms are of two

classes—pathognomonic and accidental. To the first belong the sudden development of high fever, usually with chilliness or rigor; cerebral symptoms and muscular pains; disturbances of the digestive apparatus; icterus and swelling of the liver from biliary congestion; enlargement of the spleen; renal symptoms. To the second class belong cutaneous eruptions, as roseola, erythema, purpura, petechiæ, herpes labialis or nasalis, epistaxis, bronchitic symptoms. Males are much more frequently affected, and usually between the ages of fifteen and thirty years. Most cases occur during the summer. The hygienic and sanitary conditions of places in which the disease has occurred have been recognised by all observers as bad. No positive case of direct transmission of the disease has as yet been observed. As exciting causes there have been mentioned errors in diet, exposure to cold, over-exertion, ingestion of bad beer; but the true etiology of the disease has not yet been discovered, and the investigation of the blood for bacteria, carried out by some writers, has had but negative results. Though the affection has ended fatally, yet the prognosis is usually favourable. The recovery, however, is tedious. The severity depends upon the degree of the renal involvement. (American Journal of the Medical Sciences, Jan. 1891, p. 75.)

AFFECTIONS OF THE BRAIN AND NERVOUS SYSTEM.

ACUTE PRIMARY ENCEPHALITIS.

Professor Strümpell (*Deutsches Arch. f. klin. Med., Band* XLVII., *Heft* 1 *und* 2) begins by comparing the position taken by the primary acute inflammatory processes in the spinal cord and brain respectively. He says:—"Primary acute non-suppurative myelitis is a well-recognised disease. No definite limit can be set absolutely to the extent of the lesion, but, notwithstanding, it is as a rule localised to a small part of the cord, as, for instance, in transverse myelitis. Further, another form of acute inflammation is recognised, viz., polio-myelitis. On the other hand, practically nothing is known about primary non-suppurative inflammation of the brain. In the medulla oblongata acute inflammatory change may take place, as in acute inflammatory bulbar paralysis. Then, again, an acute hemorrhagic poli-encephalitis superior has been described where a rapidly appearing paralysis of the eye muscles is seen—due to a hemorrhagic inflammation of the corresponding centres." Professor Strümpell then describes more in detail the acute encephalitis of children called, in the absence of more exact knowledge, infantile spastic hemiplegia. A sudden hemiplegia is not infrequently seen in children hitherto in perfect health. They fall suddenly ill with fever, vomiting, and headache—sometimes there may be, in a day

or so, convulsions and unconsciousness, but after a few days the acute illness is at an end, the child is well and cheerful, but there remains behind a more or less wide-spread one-sided paralysis, with its accompaniments and after-effects, viz., contracture, imperfect growth, athetosis. No question of perverted or arrested development can arise, nor yet of a chronic progressive disease, for it occurs in children who were perfectly well before. Considering the clinical peculiarities of the disease it could only be hemorrhage, embolism, or acute encephalitis. Hemorrhage is extremely rare in children, besides the illness in question is in no sense the picture of the apoplectic seizure. Embolism is more difficult to exclude, but there is no heart disease, and the symptoms (fever, vomiting) are of a more general character than we see in the embolism of the adult. There thus only remains acute encephalitis. A proportion of the cases of porencephaly are of inflammatory origin. If there is not a total destruction of the superficial parts of the brain then there is shrinking and atrophy. It is granted that it is sometimes impossible to give, in some long standing cases, a certain opinion upon the kind of lesion which lies at the bottom of an infantile hemiplegia. Comparison between acute polio-myelitis of children and acute encephalitis, shows them to be very like each other. They are both found, with few exceptions, in children only. The onset and progress are alike. There is rapid recovery from the acute attack, which, however, leaves destruction behind it, upon the situation of which depends the character and extent of the incurable but stationary paralysis. Professor Strümpell says that his proposition to call the disease poli-encephalitis has met with much opposition. The onset of the disease with convulsions, perhaps one-sided, the epilepsy not infrequently occurring after it, and the athetosis all point to a cortical lesion. He freely acknowledges that it should not be thought that the cortex is involved alone, and no other part, and therefore, recently, he has proposed the more general term—acute infantile encephalitis. In the same way the word polio-myelitis must not be read too literally. The hemiplegia following acute illness, especially scarlet fever, holds a different place, and more investigation is needed on the subject. (Dr. Trevelyan's Abstract, Medical Chronicle, Dec., p. 216.)

CEREBRAL HEMORRHAGE.—Operative Treatment of.

The treatment of ordinary cerebral hemorrhage, that is, from the lenticulostriate artery, which I am about to propose, may seem at first sight not only chimerical but dangerous; I must nevertheless earnestly commend it to consideration, and it is that in cases of simple apoplexy ligature of the common carotid should be performed. My reasons for urging it are as follows, and I trust they may appear to be cogent. 1. Present measures, for example, position, application of cold, bleeding, counter-irritation to the legs, etc., can in no wise be considered as in any way to check the

hemorrhage from the injured vessel. Indeed, in appreciation of this view, most modern writers advise leaving the patient alone to take his chance. 2. The remote consequences, namely, permanent hemiplegia, even if death itself does not ensue, vary directly with the number of fibres torn through by the hemorrhage; it is therefore absolutely incumbent upon us to, under all circumstances, stop the bleeding if possible. 3. This can be effected either by arrest of the carotid stream, or by ligature of, or pressure upon, the bleeding point. 4. To effect the latter a dissection would have to be performed which would certainly produce more destruction than concomitant benefit. 5. On the other hand, compression, or better, ligature of the common carotid, not only arrests the flow of blood from the lenticulostriate artery, but in a few seconds also even the flow from the middle cerebral artery. These facts were discovered by Mr. Spencer and myself by experiments on the monkey, and published in the British Medical Journal, March 2nd, 1889, page 457. 6. Aseptic ligature of the common carotid is a very simple procedure, and primary union can be ensured in a few days; the temporary paresis which has occasionally been noticed and which has been accounted for by the experiments alluded to I myself have never seen and the occurrence of permanent hemiplegia, cerebral softening, &c., is only to be met with, so far as I am aware, in cases of septic operations. The dread of, and the importance ascribed to, ligature of the carotid are therefore quite fictitious and ought not to be allowed to stand in the way of the suggested procedure, and I believe myself that if a patient had had a slight hemorrhage it would be justifiable to tie the carotid as a prophylactic measure. (Mr. Victor Horsley on the Surgery of the Central Nervous System, British Med. Journal, Dec. 6, 1890, p. 1288.)

DEPRESSED FRACTURE OF SKULL.—Treatment of.

I wish to urge in the most emphatic manner the necessity of operating upon every such case, whether or not accompanied by an external wound of the soft parts or by immediate symptoms of gravity. It is of course—in the latter contingency, and especially where the patients are children, who frequently, as we have all seen, are extremely tolerant of extensive injuries of the kind—easy to understand how the present practice finds favour of letting, as it is called, "well" alone, but I would submit that the adoption of such a course is not "well" but ill, for it is just in these cases, and particularly where the injury has been received early in life, that the future will almost certainly bring with it, not only epilepsy, but also mental defect, persistent loss of memory, and, in fact, general deterioration. From this lamentable condition it is now, through the discoveries of Sir Joseph Lister, possible for us, without undue risk to restore the patient to health. As an example, I may mention that in one instance I was able successfully to elevate into its normal position the whole fronto-temporal region of a child, and it

seems to me that such should be our invariable practice in these cases, especially when we consider that it affords the only opportunity of clearing the subdural space of blood and clots. The next condition to be considered is that of laceration of the brain, and, in compound cases, recent or of long standing, I do not imagine that any exception would be taken to active treatment, but I should like to go further, and say that these measures should equally be applied to all simple cases of laceration, as by such means the remote or, even sometimes, immediate consequence of epileptic convulsions may be prevented or entirely relieved. (Mr. Victor Horsley, on the Surgery of the Central Nervous System, British Medical Journal, Dec. 6, p. 1287.)

DIABETIC COMA.—Symptoms and Treatment.

Schmitz (*Berliner klinische Wochenschrift*) recognizes two distinct varieties of diabetic coma. The first is due to weakness of the heart, caused by the effect of the sugar in the blood upon the muscular fibres. In such cases the face is cyanotic, the respiration rapid, the pulse slow and small, becoming rapid and irregular on exertion, the cardiac impulse is scarcely perceptible, and the first sound almost inaudible. In order to prevent coma in such cases everything that excites the heart must be avoided and exercise must be limited. All potassium salts including the bromide, salicin and its compounds, antipyrine, antifebrin, and hot baths are contra-indicated. Narcotics should not be used unless they are absolutely necessary. The treatment of the diabetes must not be neglected. If the symptoms are very marked the patient must not be allowed to rise from the recumbent position for any purpose. Black coffee is the best stimulant to give by the mouth, and if it causes vomiting musk or camphor may be given hypodermically. Schmitz makes it a rule not to permit the patient to rise until the first sound of the heart becomes clear. The second form of diabetic coma the author considers an acute self-infection, incorrectly called acetonæmia. This condition is preceded by symptoms mistaken for indigestion, namely, lack of appetite, eructations of offensive gases, sleepiness, &c. Sleep is unrefreshing; there is usually constipation, sometimes diarrhœa, and the tongue is dry and coated. These symptoms continue for about two days, when the patient becomes restless and drowsy; the respirations increase to 45, the pulse to 130 or more, and the temperature is somewhat elevated. The patient can be aroused from his sleepy condition by a loud call, but immediately relapses into semi-stupor. He complains of thirst and of pain in the upper part of the abdomen, which, however, is not tender. The pain may be paroxysmal and intensely severe. After violent efforts vomiting of greenish fluid occurs, and the pain is somewhat relieved. A physical examination of the lungs reveals nothing abnormal. The pupils are usually contracted and do not respond to light. Later, violent tonic and

clonic spasms occur, and death in coma follows. In the treatment of this form Schmidt recommends the administration of one or two tablespoonfuls of castor oil, whether the bowels are constipated or not. The purgative is given in order to remove the products of decomposition in the bowels, these products being the cause of the symptoms. After purgation the symptoms rapidly disappear. Of eight cases of this variety in the author's experience, four not treated with the oil died, and the remaining, treated with it, speedily recovered. (Medical News, Jan. 10, 1891, p. 49.)

DIABETIC PARAPLEGIA.

The *London Medical Record* quotes from a recent lecture by Charcot on the organic or dynamic affections of the lower limbs, in the course of which the subject of diabetic paraplegia was considered. Since 1880, when Jules Worms wrote of the symmetrical neuralgias of diabetic patients, other writers, such as von Ziemssen, Buzzard, and Bernard, have pointed out other neuropathic conditions, such as formication, hyperæsthesia, dysæsthesiæ, and even absence of the knee-jerk, as the result of diabetes. The absence of the knee-jerk, in cases that are grave but not of necessity grave because of the large quantity of sugar excreted, is apparently the result of a peripheral neuritis, the spinal cord being found intact. In some cases locomotor ataxia is simulated by this symptom, by the lightning pains, by other sensory disturbances, and by the ataxic gait. But neither in the diabetic ataxia nor in the alcoholic variety is the gait really that of tabes, the muscular paralysis being most marked in the extensors of the foot. In fact, in all the forms of pseudo-tabes, whether diabetic, alcoholic, saturnine, arsenical, or from beriberi, we see the "steppage," not the true ataxic walk. The front part of the foot falls, and the patient is obliged to step higher than usual to prevent the toes from catching the ground. The paralysed muscles show the electrical reaction of degeneration. The spinal cord, however, is not the site of serious alteration, the posterior columns especially remaining quite free from impairment. In diabetic paraplegia there is not that pain on pressure of the limb found in the alcoholic variety, but the feet fall even when the patient is seated. Taken as a whole, the case exhibited by the lecturer bore the closest resemblance to the alcoholic cases, but there was no alcoholism about it. (New York Medical Journal, Dec. 27, 1890, p. 718).

EPILEPSY.—An Addition to the Therapeutics of.

Almost countless drugs and combinations of drugs have been used in the treatment of epilepsy, with the result that the various bromides, either singly or combined, have so far given the best results in relieving this distressing disease. Dr. Charles S. Potts has sought some drug which would be equally efficacious in lessening the number of epileptic seizures and at the same time not cause the

disagreeable symptoms which may follow the persistent use of the bromides. With this end in view various drugs, as antipyrine, antifebrin, and bromide of ammonium were separately tried, but with indifferent results until Dr. H. C. Wood suggested the use of antipyrine and bromide of ammonium in combination (*University Medical Magazine*). Since then this mixture has been used with excellent results in the treatment of forty-three cases of idiopathic epilepsy. In none did it fail to cause marked amelioration of the symptoms, and in some it gave relief when all the other commonly-used remedies had failed, and in none has there been any indication of bromism, or of the disagreeable symptoms to which antipyrine sometimes gives rise. For adults the dose, which is given three times a day, contains six grains of antipyrine and twenty grains of bromide of ammonium. (American Journal, March 1891, p. 289.)

EPILEPSY.—Operative Treatment of.

The most frequent disorder in which our advice is sought as to the propriety of operation is epilepsy. In cases of traumatic epilepsy the results have been, on the whole, very encouraging. A considerable number of cases are on record, some of them very severe, in which the patient was entirely relieved of his dreadful malady; and, while idiopathic epilepsy has not yielded such good results, they have been sufficiently encouraging to warrant our persisting to operate in well-selected cases. The results, I think, in general, may be summed up as follows. First: Taking one operator with another, a small percentage of cases will die from the operation. Secondly: In a small but somewhat larger percentage absolutely no result, good or bad, will follow recovery from the operation. Thirdly: In a large percentage of cases the patient, while not cured, will be benefited, the fits persisting, but with lessened frequency and violence. Fourth: Perhaps in twenty-five per cent. more or less the result will be practically a cure. If I may judge from the feelings of the parents and of the patients also, the opinion of those most interested is that the operation is justifiable, because the malady is so dreadful. Even if the patient is not benefited no harm is done, and whether he is benefited, cured, or dies, both he and his friends are content. One thing especially should be noted. It has been used as an argument against operating that the removal of diseased tissue will result in a permanent paralysis, and that the patient pays dear for the cure; and that he may not only be cured but have the additional affliction of a useless arm or leg. This is not my experience. The paralysis which follows the excision even of a motor centre is only temporary. One of my patients whose hand was absolutely paralysed immediately after the operation, had so far recovered its use after between three and four months that he could play baseball; another is able to use his hand well though it is slightly paretic; and a third is scarcely conscious that his hand was ever affected. Whether, as is most

likely, this recovery of function is due to the development of the bilateral function of the corresponding centre on the other side, or whether, as seems less likely though not impossible, new cerebral tissue has been developed, is not certain. The recent experiments of Prus, Salviati, and Gilman Thompson show that portions of the cerebral cortex can be successfully transplanted from one animal to another. Possibly this may hereafter lead us to a more perfect restoration of motor function, by a similar transplantation from an animal to man. (Prof. W. W. Keen, Medical News, Nov. 1, p. 445.)

EPILEPSY.—Use of Biborate of Soda in.

This treatment of epilepsy has been in use by some practitioners several years, and recently Dijoud (*Mercredi Médicale*) has employed it in twenty-five cases of epilepsy in which the bromides had not been successful. The treatment was continued from four to seven months, and the dose varied from fifteen to ninety grains a day. In one case there was complete recovery, and eighteen were relieved. There seems to be little question that by means of borax we are able to diminish the number of attacks in many cases of epilepsy which do not yield to the bromide treatment. The following formula is recommended: ℞. Biborate of sodium, in powder, ℥ ijss; glycerine, ℥ jss; syrup of bitter orange, ℥ij. M. A tablespoonful contains 30 grains. (American Journal, Oct. 1890, p. 402.)

EPILEPSY AND INSANITY.—The Eye in.

In idiopathic epilepsy of the male adult, even where the stage of dementia has been reached, both the intra-ocular and the extra-ocular motor-groupings seemingly, as a rule, remain unimpaired both as to innervation and to active impulse, although in some instances curious enervations and limitations of action seem to exist. In the lower grades of imbecility, as seen in the male adult, which have resulted from malformation or disease of a minor degree than that producing so-called idiocy, that have supervened in infancy or occurred before birth, both the intra-ocular and the extra-ocular muscle-groupings, as a rule, remain unaffected both as to innervation and as to proper action; in fact, they seem ordinarily to retain their original condition without any pronounced indications of wear and tear; a condition that most probably evidences very little abuse of a delicately poised muscular apparatus. In the second stage of paresis, as seen in the male, both the intra-ocular and the extra-ocular motor-groupings are in all instances more or less paretic, as evidenced by inequalities and irregularities of pupillary areas, with peculiarities in iritic movement and loss in ciliary tone and power, as well as by extra-ocular insufficiencies and ataxic nystagmic motions—all indicative of imperfect muscle-innervation and inadequate muscle-action. (Dr. Charles A. Oliver, Philadelphia, American Journal of the Medical Sciences, Nov. 1890, p. 490.)

FOCAL EPILEPSY.—Operative Treatment of.

The first deliberate operation to relieve a case of focal epilepsy in which no gross lesion was discoverable was performed by myself, and I am therefore naturally anxious that the question of such active interference should be thoroughly tested. Moreover, a most important practical conclusion will indirectly result from a free decision on the point, for I need hardly remind you that by leading to earlier operation it will inevitably secure the discovery of small but gross lesions, of which the existence, from the absence of optic neuritis, &c., may have remained undetected. Bearing closely on this point, and emphatically confirming the advisability of such operations, is not only the fear of missing lesions, but also the danger of sudden death if the exploratory operation be delayed. It is easy to denote the instances in which the operation should be performed, namely, in all those where an initial spasm of one segment or part of the body can be detected. The foci of the representation of movement of individual segments as they exist in the cortex are now fairly well known, and I have indicated on the photograph of one of Professor Cunningham's beautiful casts the positions of these foci, as I have found them in man, from observation of the effects of direct application, for diagnostic purposes, of the electrical excitation of the cortex. The procedure to be adopted in these cases is, I venture to suggest, as follows: The correct examination of the case, the observation of attacks by trained nurses and attendants, will, in some cases of epilepsy, enable a positive opinion to be expressed regarding the seat of the epileptogenous disturbance. Exploration of this spot should therefore, in my opinion, be undertaken, after a few months' trial with bromides, douches, &c. If no gross lesion is observable when the cortex is exposed, it should be stimulated with the induced current, preferably of a Du Bois-Reymond coil, furnished with one Daniell or chloride of silver cell, and with aseptic electrodes of platinum two millimètres apart. Careful observation will soon show movement of each segment. The locality giving rise to the initial spasm should then be excised. Owing to the fact that the focus alone of the representation of one segment is thus removed, only slight and temporary paresis follows. This determination for diagnostic purposes of points by electrical excitation was suggested and employed by me in 1883 in a case of encephalocele, but I did not apply it to the purpose of differentiating cortical foci, until 1885. The case I then operated upon, and which I regarded as hopeless, has since improved and developed in a most remarkable way, demonstrating very strikingly the chief point to be noted in all these cases, namely, the immediate and progressive improvement in the mental condition. Of course this observation holds good for all successful operations for epilepsy whether dependent on gross lesions or not, and it is evident, therefore, that from two distinct points of view, the excision of an epileptoge-

nous focus, is beneficial. So far few cases have offered themselves as suitable for this line of treatment, but I have tabulated those known to me, and no doubt this list will soon be supplemented. Upon the results of this operation as a relief of epilepsy and traumatic epilepsy, which are evidently distinctly favourable considering the hopeless nature of the cases, I wish to add a few words. Personally, I do not think that a final answer can be given on the permanency of the freedom from epilepsy until each case has been observed for about five years, but if the attacks are only mitigated in severity, and not absolutely cured, a notable relief is afforded, of which the improvement in the mental condition is at once the clearest evidence and the most desirable result. (Mr. Victor Horsley, British Medical Journal, Dec. 6, 1890, p. 1291.)

[See also Mr. Horsley's remarks on the "Operative Treatment of Tumours of the Brain," at page 261 of this volume.]

HYSTERICAL ANÆSTHESIA.

The characteristics of hysterical anæsthesia are: 1. Its frequent presence in the retinal field, and its peculiar distribution here. 2. Its distribution on the skin, affecting first the pain-nerves, and its modification, disappearance, or transfer by metals, or suggestion, or cutaneous irritants. 3. Its peculiar involvement of the auditory nerve, causing deafness to high and even low notes, as well as its dulling the hearing generally. 4. The rarity of muscular and articular anæsthesia, except in connection with profound paralysis. 5. The involvement of the taste and smell. (Dr. C. S. Dana, p. 164.)

HYSTERICAL FACIAL PALSY.

At a recent meeting of the Medical Society of Paris, M. Chantemesse presented three patients suffering from facial paralysis owning a hysterical origin. He remarked that these cases were extremely interesting, for although facial hemispasm was well recognised in hysteria, it was quite otherwise with facial paralysis, which was rare, and the true existence of which was, for many observers, sufficient ground for rejecting its hysterical origin. He submitted, however, that after examining the three examples which he exhibited, the members of the Society would have no hesitation as to their nature. It was nearly always the inferior division of the facial nerve which was involved, the orbicular division being left intact, as is usual in paralysis due to a central cause. The attack is in general seated indifferently on the left or right side, often, however, bilateral, with a predominance on one side. The appearance of the patient is characteristic, almost pathognomonic. On the affected side the sensibility of the pharynx and the conjunctiva is diminished; the same applies to the senses of smell, taste, hearing, and vision. Hysterical zones are, on the contrary, rare. The intelligence is blunted and the memory defective. The onset of the attack is usually sudden and the recovery gradual. (Lancet, Nov. 1, p. 950.)

INTRACRANIAL LESIONS.—Exploratory Trephining in.

In both classes of intracranial lesions, in those where there are pressure symptoms, and in those where there are function disturbances there are a considerable number of cases in which we are in doubt, either of the character of the lesion, its extent, its location, or of its physical characteristics. In these cases the same rule should hold good in the head as in other parts. If the danger is great, and especially if the result without interference is almost sure to be fatal, as is so often the case, intracranial lesions must now fall into line with lesions elsewhere, and we should perform exploratory trephining in order to make a correct diagnosis, and if the exploratory operation shows it to be possible we should remedy the condition found. The vital importance of the brain and the gravity of its lesions, while they should make us cautious, should also make the rule of exploratory operation even more imperative here than elsewhere. This rule, however, must be modified in one important respect in intracranial lesions. In the abdomen, for instance, we need not be absolutely sure of the location of the lesions, for when the belly is opened its entire cavity is at our command. In the brain the conditions are very different. Exploration is limited to the exposed area and its vicinity. Hence the location of the lesion should at least be *probable* before we operate. But the extreme gravity of these intracranial lesions should embolden us to operate when the location *is* probable. If we wait until it is ascertained with certainty we must wait till a post-mortem examination clears up the diagnosis. I should be loth to give the impression that I recommend, even to the best surgeon, reckless or indiscriminate trephining. Each case must be carefully considered, all the facts elicited, and the possibilities, the advantages and the dangers weighed; and if, having done this, the possibilities, of gain outweigh the probable dangers, exploratory trephining is clearly indicated. (Prof. W. W. Keen, M.D., Medical News, Nov. 1, p. 441.)

[Dr. Keen's Article on the "Technique of Operations on the Brain" will be found at page 267 of this volume. See also his remarks on the "Operative Treatment of Epilepsy," at page 26.

INTRACRANIAL LESIONS.—Their Localization.

At the New York State Medical Association, in Oct. 1890, Dr. James J. Putnam, of Boston, called attention to the relative value of certain signs of cerebral tumours, especially of such tumours as are a little outside of the familiar areas of the central, temporal, and occipital zones, and only infringe upon these, so that the symptoms would be liable to occur rather late in the progress of the case. It is generally admitted, he said, that monoplegias and localized hemiplegias are more valuable as localizing signs than monospasms and localized convulsions. A paralysis gives fairly

positive evidence that the whole cortical area corresponding to a set of movements is destroyed; whereas, a localized convulsion may be due to an irritative lesion in the tissues adjoining the area in question, or at a distance from it, or even to an unstable nutritive condition of the cortical area without gross lesions. In accordance with a similar course of reasoning, the speaker said that a distinction could be drawn between the different localized paralyses on the one hand, and localized convulsions on the other. Those functions of the brain which are relatively highly specialized and complex in character, are more likely to suffer disturbance than the less highly specialized and complex functions. Thus, Hughlings Jackson long ago pointed out that, given an irritation of the arm- or in the leg-centre leading to an epileptic attack, the attack would be most likely to begin in the thumb or fingers in the one case, and in the toes in the other. According to this statement, a localized convulsion or paralysis of the shoulder would have a greater localizing value than a convulsion of the muscles of the hand, and hence would indicate the presence of an irritative lesion of the shoulder-centre more surely than a convulsion of the muscles of the hand would indicate a lesion of the hand-centre. This the speaker believed to be true. Ordinarily an error in connection with this would not be of much importance, as the operation would in all probability be successful, and the mistake never be discovered. The mistake would be important, however, if the convulsions were caused by pressure transmitted from a considerable distance, or by œdema or anæmia. (Dr. James J. Putnam, Philadelphia, Medical News, Nov. 1, 1890, p. 446.)

LANDRY'S PARALYSIS.—Pathological Anatomy of.

Nauwerck and Barth report (*Deutsch. Med. Zeit.*) the following interesting case: A girl, twenty years old, who had suffered for some time from pains in both legs, noticed that her legs began to be paralysed. This paralysis later attacked her body and arms. The paralysed muscles did not atrophy and never lost their normal electrical irritability. The reflexes in the lower part of the body were abolished. The sphincters, however, were unaffected. Just before death a slight improvement in the paralysed muscles was noticed, and the sudden death due to bulbar paralysis was quite unexpected. A microscopical examination of the brain and spinal cord was negative. The nerves of the cauda equina, however, showed evidences of a severe interstitial neuritis, and the sciatics, as well as the anterior and posterior roots of the spinal nerves, were similarly affected. The bulbar nerves and the nerves of the upper extremities were normal. Nauwerck and Barth conclude from this case that the peripheral nerves are the ones affected. Also, from the enlarged spleen, these authors found that it is an infectious disease. (Dublin Journal of Med. Science, Jan., p. 67.)

LANDRY'S PARALYSIS.—Bacilli in.

Dr. E. Centanni, of the Pathological Institute at Bologna (*Alienist and Neurologist*), made an anatomical examination of a typical case of acute ascending paralysis, and found an acute interstitial neuritis, indirectly involving the spinal cord. A peculiar bacillus was found in large numbers in all the peripheral nerves when subjected to methylene blue borax, according to Sahli's method. The bacillus is cylindrical, rod-shaped, with round ends about 1·20 μ (micro-millimetres) in length, without spores, or tendency to any particular form of aggregation. It is mostly found in the endo-neural lymph spaces, surrounding the sheath of Schwann. (Ibid, p. 67.)

LEAD COLIC.—The Pulse in.

During the attack of colic the pulse becomes hard and resistant, and is very decidedly retarded. A pulse which has been beating at the rate of from 70 to 80 in the minute and has exhibited no character other than normal will, during an attack of colic, sink as low as 40, and become extremely hard and incompressible. The average rate of pulse beats during lead colic is rather less in the male than in the female, and a few hours after the attack of colic has passed off, the beats will return to their normal number and the pulse resume its softness. I would not call the pulse of lead colic a feeble one, it is rather hard than feeble. It is interesting to note the slowing of the heart's action as part of this process. It is explained I think as Eulenburg and Guttman have shown, by reflex inhibition through the mesenteric and cœliac plexuses of the abdominal sympathetic; the fibres which convey the impression being sensory and running, according to Bernstein, along the mesenteric artery. I agree with Riegel that colic, high arterial tension, and retarded action of the heart are all present together. Are they coincident? The high arterial tension only lasts at first during the colic, hence the absence in the early stages of lead poisoning of the hypertrophy of the heart which is noticed in the later stages. It is difficult to separate in point of time the three states, colic, high tension, and slowed action of heart, but it seems to me as if lead first irritated the sympathetic and intestinal ganglia; this is followed by spasm of portions of intestine and arteries, and by inhibited heart's action. That such is the course of events is confirmed by a consideration of the functions of the kidney. During lead colic very little urine is secreted. In some of my own cases there has been suppression of urine, or from 6 to 12 ounces of urine only have been secreted daily. Wherever there was severe colic and heightened arterial tension, just in proportion was the amount of urinary secretion diminished, and correspondingly its specific gravity increased. The interesting point observed in my cases is this: that after an interval of freedom from pain, which had been accompanied by high tension and its attendant deficiency of urina-

tion, when the colic had returned days after arterial tension again rose, and the same deficiency was observed in the amount of urine secreted. The facts here enunciated were also observed by Riegel. (Dr. Thomas Oliver, Goulstonian Lectures, British Medical Journal, March 21, 1891, p. 629.)

LEAD COLIC.—The Pupil in.

I have been much interested in the following facts which I have lately observed, and which, in my opinion, help to prove that lead acts primarily upon nerve tissue and not upon muscular fibre. In nearly every instance where lead colic has been experienced, and the minor degrees of it keep returning, there will generally be noticed a slight inequality of the two pupils; sometimes the right is the larger, sometimes the left. This is interesting when looked at in the light of Dr. John Ogle's observations upon the altered state of the pupil, and its relation to pressure upon the thoracic ganglia. My idea is that deranged function of certain parts of the abdominal sympathetic or of sympathetic fibres coming, as Gaskell has shown, from the thoracic part of the spinal cord, passing to the solar plexus, and through it to the intestine, causes inequality of the pupils. I have observed this inequality in abdominal aneurysm, where there was no positive sign of pressure upon the thoracic sympathetic; and the other interesting fact is that where there have been repeated attacks of colic, or where there has been one severe attack, and sphygmographic tracings have been taken of the radial pulses, there will nearly always be found higher arterial tension in one than in the other. Admitting that even in health there is a degree of difference in the fulness and tension of the two radial pulses, this difference in lead colic is so pronounced as to stand out prominently as something peculiar to the illness, and it differs from the healthy tracings in so far as it is not always the pulse of the limb that is most used that shows the higher tension. Like the inequality of the pupils, it stands in some way related to primary disturbance of the abdominal sympathetic fibres, and through them of the vasomotor centre. (Dr. Thomas Oliver's Goulstonian Lectures, British Med. Journal, Mar. 21, 1891, p. 628.)

LEAD POISONING.—Neuro-Retinitis of.

Two kinds of neuro-retinitis are met with in lead poisoning: one the acute, in which the borders of the disc are swollen, ill-defined, and irregular; the disc itself hyperanæmic, and mottled or generally reddened; the vessels obscured, or if observable, they are seen to be narrowed, and have delicate white lines running along their borders; the veins are distended; occasionally hemorrhages are seen just at the border of the disc or in the retina. This is the form of neuritis most frequently met with in cases of acute encephalopathy, and may either precede or follow the attack. It is accompanied by loss of sight, often absolute, and is followed by partial or

complete restoration of sight. Optic atrophy is a frequent consequence. Gowers, in his *Medical Ophthalmoscopy,* page 233, says these ocular changes commonly occur in chronic cases of lead poisoning which have presented toxic symptoms for some time, often several years, and they coincide with an increase of the other symptoms. Such is not altogether my experience. This is, in short, a form of optic neuritis which may be rapidly developed; it occurs in people who have only worked a few weeks or months in the lead factory, and after suffering from acute headache and vomiting, suddenly lose their sight and become convulsed. Sight may be regained, or it may be permanently destroyed. The coloured lithograph (Fig. III) represents the conditions in question. Optic atrophy frequently follows. The disc, with its slightly irregular borders, is then seen to be extremely pale, small, and the vessels contracted. The changes in the fundus oculi occur in cases in which there is no albumen present in the urine, and where no special changes are detected in the brain or meninges after death. The second form of neuro-retinitis met with in lead poisoning is in old cases where the kidneys have become affected and there has been albuminuria. Here the disc is swollen and there are extensive patches of exudation around the vessels. The appearances presented are simply those of albuminuric retinitis, and have nothing to do, in appearance at least, with the simple form of acute optic neuritis first alluded to. It is difficult to say positively what is the cause of optic neuritis in acute lead poisoning. Occurring without any albumen being present in the urine, it has no resemblance to the albuminuric retinitis met with in the chronic form of plumbism with advanced kidney lesion. It may be a descending neuritis, or it may possibly depend upon a distension of the sheath of the nerve; but in no case has the sheath of the nerve appeared to me distended. (Dr. Thomas Oliver, Goulstonian Lectures, British Medical Journal, March 21, 1891, p. 633.)

LEAD POISONING.—Treatment of.

To the treatment of lead poisoning I have little to add. Preventive measures are provided at all the lead factories, but the workers are frequently careless in regard to them. From the fact that during proteid digestion in the stomach less lead is dissolved, no man or woman should be allowed to engage in any work where lead is handled without first having had a good meal. I shall not deal with the measures that ought to be adopted to correct lead contaminated waters, or as to how the solvent influence of water upon lead may be avoided. To the treatment of lead colic I have but little to add—opiates and belladonna, castor oil and sulphate of magnesia, enemata, external applications and warmth are called for. Paralytic conditions improve but slowly under electrical treatment, sometimes they disappear without ever having had any electrical application at all, iodide of potassium giving, on the

whole, the best general results. If the patients are anæmic, iodide of iron will be found useful. Lithia has little influence upon the pains either in joints or muscles, but it steadily increases the amount of urine. For the attacks of acute lead encephalopathy nothing gives such good results, in my opinion, as inhalation of nitrite of amyl, the slow pulse under its influence becomes quickened, the arterial tension is reduced, and convulsions are undoubtedly warded off. In other cases, particularly where there is complete suppression of urine in addition to the convulsions, pilocarpin has been followed by most successful results. (Dr. Thomas Oliver, Ibid., March 28, 1891, p. 691.)

[See also Dr. Oliver's papers on "Lead Poisoning" at pages 150, 152, and 155 of this volume of the *Retrospect.*]

MIDDLE MENINGEAL HEMORRHAGE.—Operative Treatment.

Hemorrhage from the middle meningeal artery even without fracture is now an accident amenable to operation and not uncommonly with success. I would especially urge that if the clot is not found by the first trephining a second trephine opening should be made. The site of these openings should be, first one inch behind the external angular process at the level of the upper border of the orbit, and, failing to find the clot, secondly at the same level and just below the parietal boss. The two openings give access to the two branches of this vessel. The accident, if untreated is necessarily a fatal one. The operation, while by no means always a success, has resulted most brilliantly in several cases, and its lesson is evident: that the surgeon should always at least endeavour to save life by trephining and ligature of the bleeding vessels. (Dr. W. W. Keen, Medical News, Nov. 1, p. 445.)

MORVAN'S DISEASE AND SYRINGOMYELIA.

Some writers and observers, with Debove in the lead, assert that Morvan's disease is identical with syringomyelia, but this is most vigorously denied by Morvan himself, and he is supported by Charcot, Hanot, and others. Nevertheless, there are many striking clinical resemblances. The asserted pathognomonic indication of syringomyelia is loss of painful sensations and inability to distinguish the temperature of any object brought into contact with the affected areas, while the sense of touch and tactile impressions remain essentially unimpaired. It is often associated with atrophy and paresis depending upon the distribution of the gliomatous infiltration about the central canal of the cord, which forms the anatomical basis of the condition and gives rise to the cavities within the cord and the dilatation of its central canal upon which the somewhat unwieldy name depends. Morvan insists that this particular dissociation of the cutaneous sensations is never found in the malady bearing his name, and the single post-mortem observa-

tion already quoted does not correspond with the findings in cases of syringomyelia now on record. However, both Morvan's disease and syringomyelia number but few published complete instances, and it may be premature to insist upon their absolute differentiation. To an unprejudiced mind the prime point of importance is the fact that they both depend upon an irregularly distributed sclerosed condition of the cord. The variations outside of that seem to be a matter dependent only upon the position of this adventitious and unsystematized lesion as it affects nutrition, sensation and other myelic functions in proportion to their anatomical implication. Besides, all gradations between typical syringomyelia and typical Morvan's disease have been encountered. Both are instructive in demonstrating the location of sensory tracts in the cross section of the cord. The clinical and anatomical features of resemblance between tabes dorsalis and Morvan's disease have been already pointed out. (Dr. A. Church, Journal American Medical Association, March 8, 1891, p. 332.)

[See also Dr. Church's article on "Morvan's Disease," at page 169 of this volume of the *Retrospect.*]

MULTIPLE NEURITIS FOLLOWING INFLUENZA.

The sequelæ of influenza which have been observed and described are numerous and varied, and a fresh contribution is made to those by H. Westphal in a recent number of the *Petersburger Med. Wochenschr.* The author describes two cases of typical multiple neuritis, of which the first symptoms were manifested in one case seven days after the commencement of the illness, and in the other, eight days. The first patient was a man of twenty-nine, who had first a feeling of coldness and numbness in the fingers and toes, and subsequently weakness of the limbs with difficulty of swallowing, abolition of the knee-jerk and of the triceps-jerk, retention of the abdominal, the cremasteric, and plantar reflexes. There was also slight paralysis of the right side of the face. Under treatment with valerianate of zinc, bathing, and faradisation, the symptoms gradually disappeared, but the knee-jerk remained absent for several months. The second case was also that of a young man. The symptoms in this patient were more severe, and were ushered in by an attack of urticaria. In the course of a few weeks there were general muscular weakness, paralysis of one side of the face and paresis of the other, difficulty in swallowing, and abolition of the knee-jerk. There was also wasting of muscles, both in the upper and lower extremities, and the reaction of degeneration was present, preceded, however, by an increased electrical irritability. There was also pain on pressure over affected nerve-trunks and muscles. There was no impairment of sensibility, and there was rapid improvement after a few weeks, accompanied by signs of considerable vaso-motor disturbance. (Lancet, Jan. 10, 1891, p. 100.)

PERIPHERAL NEURITIS FOLLOWING ACUTE INFECTIOUS PNEUMONIA.

[In the *Medical Chronicle* for January, 1891, Dr. Leech records an interesting case in which acute pneumonia was followed by extensive paralysis, clearly due to peripheral multiple neuritis. The patient was a man whose wife had suffered from pneumonia prior to her confinement. The woman who had nursed her had also died of pneumonia, and, in addition, eight other cases of pneumonia had occurred in connection with the house in which the patient died. The infectious character of the disorder was in this way clearly made out. The symptoms and signs in the case in question were of quite an ordinary character, crisis occurring on the tenth day. About a fortnight after the first symptoms of pneumonia had shown themselves, and four or five days after crisis had occurred, loss of power had become manifest in the lower extremities, but it had come on so gradually that no actual date could be fixed for its commencement. Indications of sensory changes had been noted antecedent to distinct loss of power. The paralysis and sensory changes became more marked, the lower extremities being much more affected than the upper; the knee-jerk was abolished, and there was sufficient muscular paralysis to slightly alter the shape of the foot. The contractions caused by the induced current were normal; the influence of the galvanic current was slightly modified. Pain was felt on grasping the muscles of the calf and arm. All these symptoms indicate that the paralysis was one of the class attributed in recent years to peripheral neuritis, and closely associated with acute ascending or Landry's paralysis. The patient made a complete recovery. Dr. Leech reviews in an exhaustive manner the literature of infectious pneumonia and the peripheral neuritis dependent upon it.]
(Dr. D. J. Leech, Manchester, Medical Chronicle, Jan. 1891.)

PLUMBISM.—Anæmia in.

Of all the symptoms and physical signs of lead poisoning, the one physical sign above all others which indicates that the system is becoming impregnated with lead and is suffering in consequence, is the development of anæmia, which becomes gradually confirmed, and is spoken of as saturnine cachexia. Almost from the first day of exposure to lead, hæmatosis is interfered with. I have never found in any lead workers the normal number of red blood cells. The average range varies from 2,500,000 to 4,000,000 in one centimetre. There is no marked increase in the number of white cells, but the colouring matter falls as low as 45 or 50 per cent. of the normal. Not only does the face assume the appearance of anæmia, but the features become rounded and expressionless. The first effect of lead upon the system, in my opinion, is to disturb the functions concerned in the making of blood, and closely following upon this

comes interference with nutrition. The bones have, in some of my cases, contained lead, and to this fact the anæmia may be partially attributed. Raimondi observed atrophy and degeneration of the bone marrow in lead poisoning. (Dr. Thomas Oliver's Goulstonian Lectures, British Medical Journal, March 21, 1891, p. 627.)

SCIATICA.—Employment of Absolute Rest in.

Removal of the cause, where the relationship is clear, is at times all that is necessary in the line of treatment. If this is not determinable, the treatment resolves itself into three cardinal principles—the relief of pain, the antagonizing of inflammation, and absolute rest of the part. Of these three, the last is most important. The patient should not only be put to bed and kept there, but he should be mechanically restrained from exercising the functions of the diseased nerve. This can be best accomplished by applying a splint, preferably a long hip-splint, extending from the axilla to the foot, so adjusted to the side of the body and leg as not to interfere with local treatment along the course of the nerve. The splint should be worn until the symptoms have disappeared or until the disease has passed into a chronic state, which is rare to-day in comparison with its former frequency. (Dr. W. B. Pritchard, p. 168.)

SPASMODIC WRY-NECK.—New Operation for.

Dr. W. W. Keen has lately published (*Annals of Surgery*, January) a paper read before the Philadelphia Neurological Society on a new operation for spasmodic wry-neck. This consists in division or exsection of the nerves supplying the posterior rotator muscles of the head. After having made a number of dissections, the author formulated the steps of an operation which he has repeatedly done on the cadaver, and once on the living subject. The nerves to be resected in this operation are the posterior divisions of the first three cervical nerves, by which the chief posterior rotators of the head, namely, the splenius capitis, the rectus capitis posticus major, and the obliquus inferior, are supplied. The external incision is a transverse one about $2\frac{1}{2}$ or 3 inches long, made about half an inch below the level of the lobule of the ear, from the middle line of the neck posteriorly. The trapezius is divided transversely, and afterwards the complexus, care being taken to spare the great occipital nerve. The posterior division of the second cervical nerve is then divided or exsected. The suboccipital nerve is next looked for in the suboccipital triangle, and traced down to the spine and divided. The external trunk of the posterior division of the third cervical nerve is then exposed below the great occipital, and divided close to the bifurcation of the nerve trunk. The only difficulty in Dr. Keen's case was the depth of the wound, which made it troublesome to get a good light, and rendered the mechanical steps of the operation rather difficult. The hemorrhage, though free, could be easily controlled. (Supp. British Medical Journal, March 21, 1891, p. 90.)

SPASMODIC WRY-NECK.—Treatment by Excision of a Portion of the Spinal Accessory Nerve.

Mr. Southam records three cases illustrating the beneficial effect of excision of a portion of the spinal accessory nerve in obstinate cases of spasmodic torticollis. The most suitable cases for operative interference are those in which the spasm is tonic in its nature and confined to the sterno-mastoid; but even if other muscles have become involved, excision of a portion of the spinal accessory nerve is still worth a trial, for no other plan of treatment is likely to be attended by such satisfactory results. (See details of operation at p. 273).

SPASTIC PARALYSIS.—Treatment of.

Several cases of spastic paralysis, in which considerable improvement was obtained by energetic orthopædic treatment, have been reported by Professor V. P. Gibney in the *Journal of Nervous and Mental Disease*, August, 1890. He divides tendons and keeps the limbs in normal position for two or three months. The relief given to the nervous condition in many cases is stated to have been most marked. As an example of what has to be done, it may be added that in one well-marked case, a girl, aged 7, with scissor-like progression, the Achilles tendons, the adductors of the thighs, and the hamstring tendons, were all divided on each side; adduction was further overcome by force, the knees straightened, and the feet placed in the position of slight calcaneus. The child was then placed in a wire cuirass, the leg portions of which were abducted, and not removed for six weeks. Subsequently posterior braces had to be worn to overcome some remaining contraction of the hamstrings. When last seen, nearly two years after the operation, she was able "to walk several blocks," the heels came well down, in-knee was very slight, and excitability was much diminished. (Supp. British Med. Journal, Oct. 11, p. 12.)

SYPHILITIC PARALYSIS OF FIFTH AND SEVENTH NERVES.

Mr. W. B. Prichard relates the following case in the *North Carolina Medical Journal*, Nov. 1890: A woman, æt. 40, after suffering from nocturnal headache for several weeks, was seized in September, 1889, with pain in the right lower jaw, spreading later to the upper jaw and temporal region. In five weeks' time the pain ceased, and numbness appeared in the same area, to be quickly followed by paralysis of the face on that side. In December, 1889, the right cornea ulcerated. Her condition at that time was as follows: Complete right facial paralysis; hearing much impaired in the right ear; palate uninvolved; fifth nerve affected both in its sensory and motor branches; taste impaired on the posterior surface of the tongue; the first, third, fourth, and sixth nerves were intact—the disease involving the fifth and seventh nerves only. The lesion was a peripheral one, and not central, for the

general disturbance was too slight, and such disease affecting the seventh nerve and resulting in paralysis does not usually include the frontal and temporal branches of that nerve. And, again, the reaction of degeneration was present. At what point, then (excluding the pons where the nerves certainly do not lie near each other), could these nerves be affected together? The author says that the nerves are only in close proximity at the Gasserian ganglion, and nowhere else; hence the sight of the disease at once suggested itself. As to the nature of the morbid process, it is to be observed that complete paralysis of the seventh nerve is mostly peripheral in origin—the lesion being generally in the Fallopian canal. There was no evidence of disease at this place. Syphilis is strongly to be suspected when the fifth nerve is involved along with the seventh, whereas paralysis of the seventh alone is rarely syphilitic in origin. There was, in addition, every reason to believe this patient had had syphilis. Professor Gray has said that any cranial paralysis in a patient under 35 years of age, preceded by headache, worse at night and associated with obstinate sleeplessness, is most certainly of specific origin. Thus the disease in this case is, in all probability, syphilitic in nature, and most likely a gumma. Under the use of mercurial inunction, iodide of potassium, and electricity, much improvement was obtained. (Dr. Trevelyan's Abstract, Medical Chronicle, Feb. 1891, p. 365.)

TABES.—Its Nature and Treatment.

Strümpell (*Münch. med. Wochenschr.*, 1890, 39, 667), in an interesting article upon this subject, says that, though there are so many and so varied symptoms of tabes, there are certain of them which seem to be almost invariably present. Such are the three initial symptoms—the evidence of sensory irritation in the skin, legs, arms, trunk, or head, the abolition of the patellar reflex, and the characteristic alteration of the pupil. As regards the cause of tabes the author denies the active influence of exposure to cold, excesses, traumatism, and heredity. He agrees entirely with Fournier, the first to claim that tabes occurred almost or quite exclusively in those who had at some earlier period in their lives suffered from syphilis. He has yet to see a case in which the possibility of a preceding syphilitic infection could be positively excluded. It is a mistake, however, to consider tabes as at all a form of tertiary syphilis, due to a syphilitic affection of the vessels; for the anatomical changes are totally different from syphilitic new-formations, and antisyphilitic treatment is usually entirely unavailing. As to the treatment of tabes, it is evident that no great influence can be exerted in any way upon nerve fibres already atrophied. The treatment by suspension may, in many cases, be followed by temporary symptomatic benefit, but certainly, he believes, never by any permanent good. The antisyphilitic treatment can be of no avail against the disease as already developed.

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It may, however, be tried for two reasons. First, it is conceivable that syphilis still exists in the body, and that by the employment of inunctions in early cases of tabes, the development of further changes may be prevented or at least retarded. He confesses that he has not much hope of any such action. A second reason is that a true specific syphilitic affection of the nervous system—as a gumma—may develop, giving rise to symptoms like those of tabes, or that such a growth may be present in addition to the true tabetic changes. Since it is by no means easy to determine this matter positively during life, the energetic and prompt employment of treatment by inunction is highly to be recommended. We have not yet learned the true method of treatment, which is the employment of such methods as will modify or render powerless the chemical processes going on in the diseased body. (American Journal, Feb. 1891, p. 184.)

TOXIC HYSTERIA.

Having looked in vain for any recent reference to the subject in the books at my disposal, I wrote to Professor Debove, who eleven years ago published two cases under the name of "Saturnine Hemiplegia," and got in reply a reference to a more recent paper of his own, which I have not been able to obtain, and to a pamphlet by a Dr. Hischmann, entitled "Intoxications et Hystérie," in which may be found a very clear account of what has been written on the relations of hysteria to chronic poisoning by lead, alcohol, and mercury. It seems to be now fully admitted by Professor Charcot and his followers that the nervous phenomena are truly hysterical and depend upon a fundamental hysterical diathesis. The part played by the poison is now regarded as merely that of an exciting cause. In reference to this Dr. Hischmann says: "It is even permissible to ask whether, in the absence of the poison, the hysteria would have shown itself? The question is difficult to answer, but one may suppose that, had there been no poisoning, it would have probably found some other exciting cause, such as a traumatism or a vivid moral impression." Dr. Hischmann especially points out that these hysterical paralyses cannot be confounded with true toxic paralyses, as the electrical reactions, as we found in the present case, are always normal, whereas it is well known that in true toxic paralyses—e.g., in lead palsy—the faradaic contractility is more or less lost. Besides the symptoms described, cases have been recorded of apoplectic and epileptic seizures, transitory aphasia, hemianæsthesia, oculo-motor paralyses, unilateral blindness and colour blindness, mutism, and even paralysis of the extensors of the hand and wrist simulating in its localisation the ordinary drop-wrist of lead palsy, yet all of these of a hysterical nature. It is remarkable that this association of hysteria with lead has been almost exclusively observed in men, so far only one female case having been recorded. (Dr. R. Saundby, p. 157.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

ACUTE VERRUCOSE AORTITIS.

At the Pathological Society of London on January 6th, 1891, Dr. Robert Maguire showed a specimen of acute verrucose and ulcerative aortitis, with the formation of an acute aneurysm. The patient was in St. Mary's Hospital for four months, and during life presented a systolic murmur at both the apex and base of the heart, and a soft diastolic murmur at the base. He had frequent rigors, with very irregular temperature. The splenic dulness was increased, but the spleen could not be felt. After death there was found ulcerative endocarditis of the auricular surface of the mitral valve, and on the ventricular surface slight recent ulcerations. The aortic valves were thickened, but showed no recent changes. At the junction of the ascending and transverse portions of the arch of the aorta there was a loculated dilatation of the vessel with thin fibrous walls, and containing no fibrinous deposit. On the edges of the dilatation and of the loculi were large fibrinous vegetations, in which, on microscopic examination, there were found numerous streptococci. The spleen was enlarged and contained a pale, but not softened, infarct. The case was looked upon as one of malignant endocarditis, in which the morbific matter had established itself in the aorta, and had caused verrucose and ulcerative aortitis, with the formation of an acute aneurysm. (British Medical Journal, Jan. 10, 1891, p. 65.)

ANEURYSM OF THE AORTIC ARCH OPENING INTO THE SUPERIOR VENA CAVA.

At the Pathological Society on February 17, 1891, Dr. W. M. Ord described a case of Aortic Aneurysm communicating with the superior cava, taken from a police constable aged forty-three, admitted to St. Thomas's Hospital, Nov. 14th, 1890. Patient had been a constable for thirteen years, and previously had led a life of very hard work; no history of syphilis or intemperance. Five months before admission he began to experience a pricking sensation in the right side of the chest, accompanied by dysphagia and inability to lie on the left side. When first seen he showed marked lividity of the face and ears, and the right side of the neck and chest was œdematous, with turgid superficial veins. No tumour of the chest was visible, but there was marked dulness from the right border of the sternum outwards between the upper border of the second and the upper border of the fourth ribs. There was pulsation, but no thrill over this area. On auscultation there was a long continuous humming murmur, never ceasing, but varying in intensity, being more sonorous during cardiac systole, fainter during diastole, conducted into the neck and heard over the whole of the right side of the chest posteriorly. The cardiac area of dulness

was increased, and there was a musical apical systolic murmur, distinct from the continuous murmur. The radial pulses were equal, the arteries were thickened; no ascites or anasarca. For the first ten days in hospital patient improved decidedly, but on Nov. 26th there was marked increase of the facial œdema and sharp dyspnœa; signs of pressure on the upper part of the right lung developed, and the patient died somewhat suddenly on the night between Dec. 3rd and 4th. On post-mortem examination the right pleura contained about eight pints of fluid and clotted blood; a small perforation opening into it was found in the sac of the aneurysm near the root of the lung. The aneurysm began two inches from the aortic valves, but the first part of the aorta was atheromatous; the sac was about the size of an orange, and, except for a little pale adherent clot, was empty. In the interior a small slit in the sac, about half an inch in length, opened directly into the superior vena cava, two inches below the union of the innominate veins. Reference was made to two cases occurring under Dr. Bristowe in St. Thomas's Hospital, which presented similar physical signs. Dr. Ewart referred to a specimen in St. George's Hospital museum in which there was a communication between an aortic aneurysm and the superior vena cava. During life there was very great pressure on the veins at the root of the neck. In order to try and give relief, venesection had been performed and the blood had escaped from the open vein in jets as though from an artery. Although he had not recognised the full significance of this at the time he felt that it was a point of much importance, and asked Dr. Ord if he had noticed any venous pulsation in his case. Dr. Hadden had seen Dr. Ord's case during life and also the two cases of Dr. Bristowe's that had been mentioned. He would prefer to describe the murmur as a continuous one with a wave of greater intensity in it. A murmur of this character was not absolutely diagnostic of aneurysm, as such murmurs had been known to occur in very vascular sarcomata, and, indeed, murmurs had been heard in sarcomata situated in the thorax and elsewhere. Dr. Ord, in reply, stated that no pulsation could be detected in the veins of the neck owing to the œdematous condition of the parts, and that there was no pulsation in the veins of the arm. Dr. Hadden's remarks with reference to sarcomata were very important; he had himself occasionally heard murmurs over sarcomata which were of much the same quality of tone as the one in the case under discussion, but varied in time by not being so continuous. (Lancet, Feb. 21, p. 429.)

ANGINA PECTORIS.—Resistance in the Peripheral Circulation as a Main Cause of.

The central fact and essential significance of angina is that stress is put upon the heart, to which, for the moment, it is unequal. One of the main causes of such stress is persistent resistance in the peri-

pheral circulation, or, in other words, habitual high arterial tension and we owe to Dr. Lauder Brunton the knowledge that in many attacks of angina there is an aggravation of habitual high tension by a general contraction of the arterioles. But the habitual state of the arterial circulation may possibly be one of relaxed arterioles and capillaries and low tension, so that the heart has no abnormal resistance to overcome. Here sudden general arterial spasm would put the heart to greater stress than if the habitual tension were high, since the contrast between the work demanded would be greater. When the paroxysms of angina can be distinctly traced to arterio-capillary resistance, or, when in the case of a patient subject to angina the usual condition of the circulation is one of high tension, the term "angina vasomotoria" may, perhaps, be appropriately employed. It is easy to imagine that stretching of the muscular fibres of the heart in the endeavour to overcome the resistance in the arteries might cause pain. But even when the vasomotor element is most potent, another factor must enter into the causation. Nothing is more common than high arterial tension, and it is met with in an extreme degree and produces fatal results without angina by ruining heart or arteries, or both, in hundreds of cases for one in which angina is present. Acute dilatation of one or both ventricles, again, in which stretching of the muscular fibres is obvious, frequently occurs without angina. (Dr. W. H. Broadbent, p. 189.)

AORTIC REGURGITATION.—Use of Digitalis in.

There has been much difference of opinion as to whether or not digitalis should be used in cases of aortic regurgitation. As has been more especially pointed out by Bartholow, the rational symptoms rather than the pathological condition must be our guide. It will be easily seen that undue prolongation of the diastole will permit greater regurgitation, and that when compensation can be brought about without digitalis this drug had better be omitted. Nevertheless, the increased force which results from the digitalis action may be sufficient to more than balance the increased regurgitation which it permits, and in many cases it proves useful. It is, as will be readily evident upon reflection, most efficient in those cases of aortic regurgitation which coexist with mitral disease. My advice, then, would be, in any case of aortic regurgitation, to postpone the use of digitalis until other measures have proved inefficient. The most useful combination of medicaments which I have employed is that of atropine, strychnine, and caffeine, with the occasional use of the nitrites. The principles which dictate this combination you have already been sufficiently familiarized with. In all cases, of course, those measures of hygiene which bring the patient into harmony with his environment, and which aid in restoring the internal balance of function independently of the medicaments, are to be as carefully prescribed. (Dr. S. Solis-Cohen, Philadelphia, N.Y. Medical Journal, Dec. 6, p. 623.)

ARTERIO-VENOUS ANEURYSM.—Treatment.

Compression is only suitable for cases which are seen early, and in which the affected vessels lie superficially; and if it is not successful at once, or, if its employment is difficult or painful, the risks of operation are not sufficiently great to warrant delay. It is my conviction that all these cases should be treated by operation, with the single exception of the cases involving the internal jugular, or requiring ligature of the common femoral artery and vein. It does not appear necessary to distinguish between aneurysmal varix and varicose aneurysm as to treatment. The choice of methods depends upon the size and situation of the aneurysm. In a general way, it may be said that all small aneurysms not involving the larger vessels of a limb should be extirpated unless important nerves are jeopardized by the dissection, or, as on the face, it is important not to leave a scar. The treatment selected for larger aneurysms depends upon their situation. Those of the neck which involve the external jugular vein will rarely require treatment, but should it be necessary, such cases are best treated by double ligation of both vessels. In other situations the simple ligature of the vessels should not be chosen, for it will, in most cases, require as much dissection as will incision or extirpation, while not giving the same immunity from relapse. The surgeon should make an incision down upon the sac in its entire length, and attempt to dissect it from its bed. If this prove difficult or impossible because of inflammatory thickening or intimate connection with important parts, the sac should be incised, for it is often easier to secure the vessels when the sac is freely opened. The sac could then be left entirely in place, or it could be partly removed, and it may be as well to say that suture and simple drainage of the sac have been found sufficient, and that it is unnecessary to resort to packing. In closing, we must not forget that the recently-introduced suture of veins, and the successful experimental suture of arteries, may alter our methods of treatment in some of these cases—in fact, Bassini (*Riforma med.*, 1890, April 15, 16) has already cured a case by double ligature of the artery and suture of the opening in the vein. (Dr. Farquhar Curtis, Surgeon to St. Luke's Hospital, New York; Amer. Jour., Feb. 1891, p. 157.)

BRADYCARDIA.

At the Brighton and Sussex Medico-Chirurgical Society, on March 5, 1891, Mr. Gerald Hodgson read notes of a case of bradycardia with asystole in a man, aged 44, and showed the patient. He was first admitted in February, 1887, to the Sussex County Hospital, for cirrhosis of liver and possibly kidneys (probably due to excess of alcohol), associated with ascites, œdema, and slight jaundice, occasional vomiting, and fever. The pulse fell steadily in the first three weeks after admission from 108 to 52, and subsequently after seven weeks to 48, becoming irregular, with tendency to intermit

for two seconds or so, and after eleven weeks falling to 28, and fourteen weeks to 24, when vomiting was common. He then developed pericardial effusion, with a pulse of 36, but eventually recovered and left the hospital. Just before this he had two slight fits in the night. He was readmitted twenty-seven weeks from first admission, suffering from "fits" associated with syncope. When the pulse stopped for fifteen seconds he was faint only, when it ceased for thirty seconds an epileptiform fit occurred. For six months he was subject to these attacks, varying in number from one a week to a number daily so great as to be practically uncountable. On one day they occurred every quarter of a minute for ten hours. The attacks varied in degree from slight ones perceptible only to himself, to a condition of apparent death. They were most severe severally when most frequent. The average pulse at this time was 21, the slowest recorded pulse being 6; this lasted only for a minute or so. Sphygmograms were shown traced during the syncopal pauses, showing length of pause and fall of blood pressure. These, with auscultation at the time, and the condition of the patient were taken to prove that the heart was in a condition of asystole. Latterly the attacks were regularly heralded by vomiting and a feeling of intense illness. There was severe headache on one occasion only, relieved by icebag. At first the usual cardiac restoratives relieved the asystole, but later hypodermic injections of strychnine alone did so. Tracings taken by Dudgeon's sphygmograph after injection seemed to show increased systole power of heart. But neither strychnine nor any other drug improved the usual 36 rate of beat. During the subsequent four years the patient had never had a faint, but had been again in the hospital for gumma of the fourth rib, and for what appeared to be a syphilitic testicle. He showed great idiosyncrasy to mercury. At these and many other times his pulse has been taken, and found never to be above 36. (British Medical Journal, April 4, p. 760.)

CARDIAC HYPERTROPHY.—Treatment.

Treatment for hypertrophy as such has always appeared to me to be out of place. The functional vigour and energy of the overgrown and overstrong heart could no doubt be reduced by various means —low diet, enforced rest, and such drugs as aconite—but unless it is clear that the hypertrophy has gone beyond the requirements of the condition which has given rise to it, the advantages of this procedure would be more than doubtful. Even in the attempt to relieve the incidents of hypertrophy, palpitation, throbbing sensations in the chest or head, irritable or irregular action of the heart, præcordial oppression, the employment of direct cardiac depressants is rarely of service, and is at times attended with danger. In aortic stenosis, for example, I have known aconite, given with a view of quieting tumultuous action of the heart, so far reduce the contractile energy of the left ventricle that it was no longer able to cope with

the obstruction, and death quickly followed from cardiac asthenia, the pulse becoming imperceptible, the extremities livid, and the surface of the body cold and damp. This would be less likely to occur where the cause of the hypertrophy was obstruction in the peripheral circulation, as the arteries and capillaries are relaxed by such agents as depress the action of the heart. (Dr. Broadbent's Lumleian Lectures.) (British Med. Journal, March 21, 1891, p. 623.)

CHRONIC SANGUINEOUS PERICARDIAL EFFUSION.

At the Nottingham Medico-Chirurgical Society, on Feb. 4, 1891, Dr. Handford related the case of a miner, aged 20, who was admitted complaining of vomiting and pain in the stomach. There was never any precordial pain or difficulty in swallowing. His illness began four months previously, and kept him in bed nine days. After that he worked a fortnight. Subsequently he kept his bed more or less till admission. The sickness was soon relieved, but he continued to complain of pain and distension at the epigastrium. The liver was greatly enlarged but not tender. Vertical dulness 6½ inches. Slight cough; pulse very small and irregular; dulness extending from the first intercostal space to the sixth rib, and from a varying distance to the right of the sternum to the midaxillary line. Over this the breath sounds were audible in varying degrees of intensity, and the heart sounds were feeble and distant. There was no impulse and the apex could not be localised. The left back was hyper-resonant and the respiration bronchial. The urine was free from albumen. The temperature continued normal. Pericardial effusion was diagnosed, and he was treated by rest and iodide of potassium. After a month general œdema of the extremities and ascites came on. The abdomen was tapped, digitalis was added to his medicine, and in ten days all the œdema was gone. For some time he improved in general condition, but the physical signs did not alter. On January 10th, he rapidly became faint and pulseless. In two days, by the assiduous use of warmth and stimulants, he had considerably improved, and it was decided to aspirate the pericardium. A fine needle was pushed in in the fourth space, about 1 inch outside the nipple and on the same level. Eleven ounces of coffee-coloured fluid were removed, when the pulse began to flutter and it was thought wiser to withdraw the needle. He was much relieved for two days, but became collapsed again and died three days and a half after the tapping. At the necropsy the pericardium occupied almost the whole of the left chest, the lung being invisible from the front, collapsed, and pushed to the back. The pericardium was much thickened and the sac contained over 40 oz. of fluid as described, making more than 50 oz. in all. The heart was small and covered with shaggy lymph. The mark of the puncture could not be traced, and there had been no leakage of pericardial fluid into the pleura. There was extensive perihepatitis. As the pericardium was evidently

quite incapable of absorbing, Dr. Handford regretted that he had not aspirated much earlier and had not removed more fluid. (British Medical Journal, March 21, p. 647.)

[A similar case, in which repeated aspiration was followed by recovery, was reported to the Leeds and West-Riding Medico-Chirurgical Society, on March 6, 1891, by Dr. Churton.—Ed.]

DILATATION OF THE HEART.—Some Special Causes of. Among the special causes of dilatation of the heart—acting, no doubt, on pre-existing tendencies—which have come under my notice are injudicious hydropathic treatment, the so-called Banting method of reducing obesity, and inhalation of the fumes of Himrod's powder for the relief of asthma. In one case a gentleman suffering from dyspeptic symptoms, probably due to cardiac weakness and consequent sluggish circulation in the abdominal viscera, underwent a routine treatment by baths, wet cold packs, and compresses, under which attacks of dyspnœa came on and œdema set in. He had previously been under the care of competent observers, who had not found any serious degree of dilatation. The dropsy advanced in spite of treatment, and when I saw the patient it was considerable, and the physical signs gave evidence of extreme dilatation and thinning of the left ventricle. Death occurred suddenly during a paroxysm of dyspnœa. Another patient came straight to my consulting room from a hydropathic institution, where he had undergone vigorous treatment for digestive and liver derangements attributed to long residence in India. He was very anæmic, and breathless; the heart was greatly dilated and its action irregular, and there was incipient œdema. Fortunately he recovered. One of the most extreme cases of dilatation I have ever met with was in the case of a lady who had undergone an amateur course of Banting treatment for obesity. She had lost some of her fat, but had become extremely breathless, so that to walk across a room or put on an article of clothing with the assistance of her maid caused her to pant and gasp for breath in a very painful way. The pulse was weak, small, and very irregular; no impulse or apex beat could be felt, and the size of the heart, as mapped out according to the deep dulness, was incredibly large, had not the results of percussion been confirmed by the sounds being audible over the entire area of dulness, and, later, by a feeble apex beat in the seventh space near the mid-axillary line. Apparently habitual high arterial tension had been exaggerated by an exclusively nitrogenous diet, and, under it, the ventricle had given way. It may, perhaps, be well to add that in the treatment of obesity by beef steak and copious draughts of hot water there has not been, according to my experience, increase of arterial tension, but the reverse. The following case is the most serious of several attributable to Himrod's powder:—In December, 1883, I

saw with Dr. Andrews, of Hampstead, a gentleman, aged about 36, apparently of sturdy constitution, who, after an attack of bronchitis, suffered from several nocturnal attacks of asthmatic dyspnœa. A month at Hastings had apparently restored his health; but, after a fortnight of work in London, his nocturnal asthma and shortness of breath were as bad as ever. For the asthmatic attacks he had inhaled immoderately the fumes of Himrod's powder, obtaining relief for the time, but with disastrous after-effects. The whole house was reeking with the odour of the fumes at the time of our consultation. Dr. Andrews had witnessed the rapid development of the condition of the heart which existed. The area of cardiac dulness was greatly increased; no apex beat was recognisable; there was a doubtful systolic murmur (mitral) in the region of the apex, a loud systolic murmur (tricuspid) near the ensiform cartilage, and a faint systolic aortic murmur. Tricuspid incompetence was further distinctly manifested by great enlargement of the liver, and by marked jugular pulsation. There was nothing in the patient's habits, or mode of life, or previous history which was at all calculated to give rise to dilatation of the heart, and I had the less hesitation in attributing it to the solanaceous fumes from having seen similar effects in other cases. In about a fortnight, after free purgation by calomel and the administration of digitalis, the patient was much better, free from asthma and able to walk upstairs, while the liver had gone down to its usual size. The heart remained very large, gave no defined apex beat and only a diffuse general impulse, while a high pitched mitral murmur, a louder tricuspid murmur of low pitch, and a faint aortic murmur, all systolic, were audible. The action of the heart was curious; now and then there was a sudden bump against the palm of the hand placed over the right ventricle, and it was found that the beats of the heart were in pairs, only the first of which was accompanied by a systolic apex murmur, the second having a loud first and second sound, but scarcely reaching the pulse. Within both beats the loud tricuspid murmur was present. The improvement continued, so that the patient resumed his duties before the end of January, and attended regularly to business through the month of February. In March came another relapse which led to dropsy, and the patient died early in April. Fortunately an examination of the body was permitted, notes of which are as follows:—There was much œdema of the legs and right arm, but no fluid in the abdomen. The heart was enormous, measuring six inches and a half from base to apex, and sixteen and a half in circumference. It was flabby, lying flat, pale, fatty looking, not lacerable. The right auricle was greatly dilated and very thin, the wall being translucent at one part; the appendix was filled up by solid clot and stained black by blood. The tricuspid valve took four fingers easily; there was no roughness. The right ventricle was enormously dilated, and would

almost have held a duck's egg; the walls were thin, soft, and flabby, the valve stained black; the flaps were thin and the cords delicate. The pulmonary artery and valves were normal. The left auricle was not at all dilated, the appendix contrasting with the right, and compared with the other cavities curiously small. The mitral orifice would admit two fingers. The left ventricle, like the right, was enormously dilated, and looked as if it would hold a fist; the walls were thin, mottled, and flabby, but not lacerable; the papillary muscles were small, the mitral valve and cords quite normal, and remarkably free from thickening. The aorta was very small and the valves normal. (Dr. Broadbent's Lumleian Lectures.) (British Medical Journal, March 21, 1891, p. 625.)

DILATATION OF THE HEART.—Some Elements in Prognosis. The first element in the judgment to be formed will be the urgency of the symptoms, and special importance will attach to two of the series—the nausea, and loss of appetite and the sleeplessness from the effects which they have on the patient's strength. Frequent vomiting of food is of very grave import, not only because the patient does not get the benefit of the nourishment, but because it shows that the stasis in the abdominal circulation has reached a point which interferes seriously with the digestive secretions. Attacks of faintness and of extreme exhaustion, or of severe dyspnœa, are also very serious. An observation is here necessary. It is not always when the dropsy is excessive that the condition of the patient is worse. From the late appearance or entire absence of dropsy in fatty degeneration of the heart, in aortic disease, and mitral stenosis, it would appear that a certain degree of pressure in the arterial system is required to co-operate with the back pressure in the venous system for the full development of dropsical effusion; and when the œdema remains moderate in amount, while other symptoms—such as breathlessness, faintness, and muscular weakness—the latter especially, indicate great cardiac inefficiency, it may be because the left ventricle propels the blood with very little force. Degeneration may be a factor in the case. A frequent, short, unsustained pulse and heart beat, without much œdema, may thus indicate a more grave condition than extreme dropsy. Long-continued excessive frequency of the pulse is an unfavourable sign. (Dr. Broadbent's Lumleian Lectures, British Medical Journal, March 28, 1891, p. 686.)

DILATATION OF HEART (RAPID) WITHOUT HYPERTROPHY. Another group of cases of primary enlargement of the heart contains those of rapid dilatation with little or no hypertrophy, which are found to be sometimes the result of rheumatic fever when there has been no implication of the valves or the pericardium. They may also occur as a sequel of other acute febrile disorders, and Dr. Goodhart reported, in the *Guy's Hospital Reports* for 1879, several cases

of sudden death from acute dilatation of the heart after scarlet fever, evidently due, not to an increase of intracardial pressure, but to diminished power of resistance of a damaged muscle. Others were, however, probably due to increased blood pressure from concomitant acute nephritis, and would therefore be comparable to the cases of rapid pulse with dyspnœa and palpitation coming on in acute scarlatinal nephritis, which were described by Dr. Wilks in a paper before the Clinical Society in 1870. The only febrile disease in which I have lost a patient from this condition is diphtheria, and then the fatal syncope has been associated with post-diphtherial paralysis; but I have frequently noticed a rapid pulse, after an attack of enteric fever, with palpitation persisting for some time, and giving just cause for anxiety lest fatal syncope should occur. In such post-febrile conditions, although digitalis is a valuable drug, I believe that alcohol, and particularly wine, is a still more important remedy. (Dr. Pye-Smith, Brit. Med. Jour., Dec. 13, 1890, p. 1347.)

IRREGULAR AND INTERMITTENT PULSE.

Functional irregularity of the pulse, when permanent and unconnected with cardiac or renal disease, is most often due to flatulent dyspepsia, to chronic alcoholic excess, or to the abuse of tea drinking or tobacco smoking. With regard to intermittence of the pulse, I would quote the words of Heberden, who wrote in 1782: "Some books speak of intermitting pulses as dangerous signs, but I think without reason, for such trivial causes will occasion them, that they are not worth regarding in any illness unless found with other bad signs of more moment." This has been the experience of all physicians since. Often intermittence is a senile symptom associated with atheromatous arteries, sometimes beginning before the 60th year, and continuing for twenty years. Not only does it appear not to interfere with health, but the patient is often unconscious of the fact. In a patient considerably over 80, I lately noticed the pulse intermit not only for a single, but for two, three, or four beats, and yet neither his own feelings nor the appearance of the face showed the slightest disturbance. While, however, intermission without other disturbance of the pulse is of slight prognostic importance, when combined with any other form of irregularity it often accompanies the gravest disturbance of the heart, the kidneys, or the brain. The treatment of an irregular pulse must always depend upon our recognition of its cause. When due to mitral disease, digitalis is an invaluable remedy, upon which increasing experience makes us rely the more; when irregularity is the result of dyspepsia, this drug is, I think, of little service, and more benefit is gained from soda, bismuth, and laxatives, and above all from insisting upon diminution in the amount of food, on prolonged mastication, and on avoidance of those articles which the patient's own experience teaches him will produce flatulence. (Dr. Pye-Smith, British Med. Journal, Dec. 13, 1890, p. 1346.)

PERNICIOUS ANÆMIA.—Treatment by Arsenic.

Arsenic still stands preëminent as the remedy for pernicious anæmia. It has effected a cure in a large number of cases, and when it has failed seldom has recovery been attained. It is characteristic of the majority of cases that they bear large quantities of arsenic without any signs of disturbance. Some, however, bear it badly, and others not at all. This may be due to the degree of gastric catarrh present. Judging from my own limited experience, I think that the greatest amount of benefit will result from the administration of arsenic in frequently repeated small doses, the maximum quantity that the patient will bear being given. If it cannot be taken for more than a few days it should be intermitted until the symptoms of irritation abate. Some patients bear minute doses, a drop or half a drop of the liquor arsenicalis every hour or two, when larger doses disagree. Its administration should be persevered with, if possible, until there is decided benefit, when it may be intermitted probably without disadvantage. In those cases in which arsenic fails, or is not well borne, iron in some form should be tried, as in a few it has succeeded after arsenic had failed. It is a matter of surprise that iron has proved of so little use in this disease. If Hunter's opinion as to the increased putrefactive processes going on in the intestinal tract be true, iron in large quantities is indicated. (Dr. A. McPhedran, Toronto, Medical News, Oct. 11, p. 367.)

PROFOUND ANÆMIA.—Hypodermic Transfusion of Dilute Saline Solution for.

Huzarski (*Centralblatt für Gynäkologie*, No. 28, 1890) reports a case of obstinate post-partum hemorrhage in which the greatest benefit was derived from rectal injection of two pints of salt solution $\frac{6}{10}$ of 1 per cent.; in a recurrence of the hemorrhage one and a half pints of the solution, warmed, were injected beneath the skin between the shoulders. Recovery resulted. (American Journal, Oct., p. 421.)

PURULENT PERICARDITIS.—Treated by Incision.

Dr. Hermann Bronner (*British Med. Journal*, February 14, 1891) records a most interesting case of pus in the pericardium, which was treated by incision and drainage. The patient, a healthy girl of eleven, had up to February 15, 1890, enjoyed perfect health. On that day she felt ill, her pulse was 100, and the temperature 101·5°, and she vomited. On the sixteenth day of illness the presence of pus in the right pleura was confirmed by aspiration, and three days later 30 ozs. of sweet pus were withdrawn. The pyrexia continuing, the cavity was washed out with boric acid solution. The pulse and respirations were still undiminished eight days later, with slight increase of the area of dulness over the heart and faintness of the heart sounds; and the possibility of pericarditis was mooted. In the course of the following two days dyspnœa increased very markedly, and the increase of the area of dulness over the pericardium

became unmistakable. On March 20 severe dyspnœa ensued, and the pulse was almost imperceptible. Dr. Major, in consultation, advised speedy aspiration of the pericardial fluid, and incision with subsequent drainage should pus be found. Removal of the fluid from the pericardium was absolutely indicated, and when this proved to be pus there was no chance of recovery except by making a free incision and draining. The incision was made by Mr. Pridgin Teale in the fourth intercostal space, beyond the mammary artery; and, to use his words, "the heart never seemed to come near either the trochar or the scalpel." Nearly two pints of sweet thick pus escaped. The wound was drained, and sublimate gauze pads used as a dressing. The relief afforded by the operation was very great. As the temperature, pulse, and respiration had not diminished much, notwithstanding the injection of a solution of iodoform in sterilised glycerine into the pericardial cavity, it was decided on the eleventh day after operation to syringe out the pericardial cavity, although the pus had always been sweet. Two tubes were inserted side by side to give free egress to the fluid and to prevent any pressure on the heart. Accordingly the irrigation of the pericardial sac with a 5 per cent. solution of boric acid at 100° was carried out with all precaution, and never seemed to affect the heart's action in the least—in this respect this case corroborates the two successful cases previously recorded, by Dr. Rosenstein, of Leyden, and Dr. Samuel West, of London. The syringing with boric acid was continued without any ill effects on the pulse, daily for eleven days. Great care then became necessary with the irrigations as the pulse was daily becoming weaker; and on the sixtieth day of illness, the twenty-sixth after the incision into the pericardium, the child sank fast, and died in the act of vomiting. The rapidity with which the two other cases recovered, particularly Dr. Rosenstein's, is, Dr. Bronner remarks, very striking. In the case now recorded there was certainly no obliteration of the pericardial sac of any extent after twenty-six days, nor did the pus diminish in quantity or thickness sufficiently to warrant the withdrawal of the drainage tube. The absence of a post-mortem examination is unfortunate. (The Practitioner, March 1891, p. 214.)

SEPTIC THROMBOSIS OF THE LATERAL SINUS.

The most characteristic symptoms of septic thrombosis of the lateral sinus are, probably: tenderness along the course of the internal jugular vein, evidences of disturbed circulation in the region of the ear, and the symptoms attendant upon emboli being carried to other parts of the body. None, however, are pathognomonic, so that the diagnosis can only be made at the time of operation. Puncture with the needle of a hypodermic syringe will at once determine whether or not the lumen of the venous channel is occluded. If its contents are septic, immediate evacuation is the only rational treatment. (Dr. J. W. White, American Journal, Feb. 1891, p. 195.)

THORACIC ANEURISM, WITH ONLY INDIRECT SYMPTOMS.

In some cases of aneurism, depending to a considerable extent upon the part of the arch from which it springs, the direct symptoms—physical signs—constitute the most prominent features; in others the indirect—or pressure—symptoms. But it is not so widely known as it ought to be, that the indirect or pressure symptoms often exist with very little trace of physical signs, especially when the aneurism springs from the back of the deepest part of the arch. I have myself met with a number of such cases. One of these is reported in the *Edinburgh Medical Journal* (July, 1881). In it there was a total absence of physical signs, the indirect symptoms consisting of bilateral paralysis of the vocal cords, dislocation of the heart, and pressure upon the left bronchus and left innominate vein, with feeble left pulse. In another case, which I saw in consultation with Dr. Samuel Sloan, and which he reported in the *Glasgow Medical Journal* (February, 1882), there were no physical signs, with the exception of a systolic murmur at the base of the heart, the parts pressed upon being the heart, the left bronchus, and the nerves. In a third case, which I reported in the *Lancet* (November 10, 1883), the only physical sign was a basic diastolic murmur, the indirect symptoms consisting of pain in the chest and at the root of the neck posteriorly, with symptoms of pressure upon the trachea and recurrent laryngeal nerve. In all the cases the diagnosis was verified by post-mortem examination. The importance, therefore, of an accurate knowledge and appreciation of the pressure symptoms of intra-thoracic aneurism is at once apparent. (Dr. T. McCall Anderson, American Journal, Nov. 1890, p. 478.)

ULCERATIVE ENDOCARDITIS.

At the Metropolitan Counties Branch of the British Medical Association, on Feb. 4, 1891, Dr. Frederick Taylor read a paper on this subject. He defined the disease as a febrile process resulting from recent, often ulcerative, lesions of the endocardium, accompanied, as a rule, by evidences of embolic obstruction of vessels in different parts of the body. He recorded a case, recently under his care and that of his colleagues at Guy's Hospital, in which the characteristic features of persistent pyrexia, cardiac valvular disease, anæmia, optic neuritis, and enlarged spleen were seen clinically; while, after death, there was found to be an extensive lesion of the mitral valve, with rupture of the chordæ tendineæ, and abundant fungating granulations on the surface of the left auricle. Micro-organisms had been found in the vegetations by Dr. Pitt. With regard to the etiology of the disease, observations were more and more tending to confirm the views of those who believed that ulcerative or septic endocarditis was not due to one particular organism, but might result from the invasion of the organisms of different diseases. According to MM. Lion and Martineau, there had been

found in cases of septic endocarditis the organisms of septicæmia and pyæmia, those of pneumonia, typhoid fever, and tuberculosis, as well as six others not found in other diseases. In different cases the valves might be differently affected according to the particular organisms concerned. Clinically, it became of the greatest interest to note the diseases with which any case of ulcerative endocarditis was associated as bearing upon its course and complications. Thus it had been noted by more than one observer that septic endocarditis following pneumonia attacked especially the aortic valves, and was sometimes accompanied by suppurative meningitis. Such a case had happened at Guy's Hospital comparatively recently. Dealing with the symptoms, Dr. Taylor called attention to the cardiac murmurs, the pyrexia, and the evidences of embolic processes, and discussed points connected with them. He pointed out the long duration of the pyrexia which was seen in some cases, extending, for instance, to six months in the case above quoted, during which the fever was almost absolutely regular, the temperature rising at night and falling in the morning. The evidences of obstruction he dealt with under six heads—(*a*) absence of pulsation in accessible vessels; (*b*) loss of function of vessels not accessible, for example, hemiplegia from blocking of a middle cerebral; (*c*) disturbed function, such as albuminuria; (*d*) obvious infarcts, as shown by the enlargement of the spleen in some cases; (*e*) hemorrhages—of some of these he suggested that they might not be embolic, but rather stand to the bacterial virus of endocarditis in the same relation as the petechiæ of small-pox and typhus did to the virus of those diseases, namely, they might be toxic in origin; (*f*) inflammatory lesions, such as optic neuritis and nephritis; their relation to embolic processes was uncertain. Among the various symptoms of this disease, special stress was laid upon anæmia and optic neuritis. Anæmia was very frequent, and had some diagnostic value. Optic neuritis occurred with greater frequency in this disease than in typhoid fever, with which it was apt to be confounded. (British Med. Journal, March 7, p. 530.)

VENESECTION.—Its Value, Indications, and Limits.

At the Royal Medical and Chirurgical Society, on Jan. 27, 1891, Dr. P. H. Pye-Smith in his paper recorded cases in which he had used bleeding from the arm, amounting to nearly fifty in number. The patients were suffering from bronchitis, acute and chronic broncho-pneumonia, lobar pneumonia, miliary tuberculosis of the lungs, valvular disease of the heart and pericarditis, Bright's disease, aneurysm, apoplexy, and epilepsy. The general results were stated, and the remedy was then considered, not as one adapted for any single disease, but as useful in meeting certain indications of pathological states. These indications were stated as follows: First, cyanosis with distension of the right side of the heart, whether from pulmonary or from some other obstruction to the circulation;

secondly, the intense pain of aortic aneurysm; and thirdly, uræmic and prolonged epileptic convulsions. The counter-indications for bleeding were then considered, and criticism was offered of its use in fevers, in inflammatory disorders, in acute pneumonia, in hemorrhage, and in apoplexy. An appendix of cases concluded the paper. (British Med. Journal, Jan. 31, p. 225.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

ACUTE PULMONARY OBSTRUCTION.

Dr. Andrew H. Smith, of New York, appends the following recapitulation to an interesting paper on this subject. 1. In acute pulmonary obstruction, the danger being from exhaustion of the right heart, the pulse at the wrist does not give reliable indications as to the gravity of the condition. 2. This can be appreciated more correctly by studying the pulmonary circulation by the aid of the pulmonary-valve sound. 3. Marked accentuation of the pulmonary-valve sound indicates a fairly-vigorous right heart labouring to overcome resistance in the pulmonary circulation. 4. Decrease of a previously existing accentuation with only moderate dyspnœa indicates decrease of pulmonary obstruction. 5. Decrease of accentuation with increase of respiratory distress indicates that the right heart is becoming exhausted. 6. Relief is to be sought: *a*, by regulating the diet in conformity with the diminished power of digestion and sanguification; *b*, by the use of medicines which dilate the arteries and promote transference of blood to them from the veins; *c*, by the inhalation of oxygen gas; *d*, by artificial respiration; *e*, by placing ligatures about the extremities in order to retain the blood in them and prevent its return to the heart. (American Jour., Oct., p. 384.)

ADENOID GROWTHS OF THE NASO-PHARYNX.—Some Points in their Treatment.

The treatment of adenoid growths, when they really exist, consists in their removal. I think one of the first points to bear in mind in connection with operations upon them is the comparative risk from anæsthesia. This is not as well known as it ought to be. When I say that I am cognisant of several fatalities having occurred it will be seen how urgent this consideration becomes. I always prefer in young adults to remove adenoids by the help of cocaine applied through the nose and to the naso-pharynx. In children and nervous individuals it is necessary, however, to give an anæsthetic. The patient should never be put so deeply under the influence of the anæsthetic as to deaden the insensibility of the larynx. Any material which finds its way into the air passages is then coughed up. When these growths are removed by scraping, cutting, or avulsion, sudden profuse bleeding takes place, the blood mixed with

a marvellous quantity of inspissated secretion, and fragments of growth will often half fill a very considerable bowl. If a patient is deeply unconscious and in a bad position, the danger of his choking is sufficiently obvious. The operation usually performed by myself is scraping these growths away with the steel nail, strongly advocated by Sir William Dalby. This most useful instrument must not be used timidly. The operator's finger nail is sufficient, if he has a strong one, for the cases of young children. We must not imagine that when we have removed the adenoid growths the treatment is at an end. It must be continued for at least three weeks or a month after the operation by swabbing out the naso-pharynx with astringent and antiseptic solutions, by syringing the nose and throat with the same remedies, and especially carrying out Politzer's treatment every day so as to render the Eustachian tube thoroughly permeable. If this be done the results are very gratifying both in improving the hearing and the intelligence of the patient. A very important matter is, that in a certain proportion of cases of nasal obstruction there may be old-standing perforative otorrhœa, with a foul and septic condition of the tympanum. There is then some risk of an operation setting up brain mischief, or even leading to general sepsis. (Mr. A. Marmaduke Sheild, Assistant Surgeon to Charing Cross Hospital, Lancet, March 28, 1891, p. 705.)

ASTHMA.—Its Relation to Other Diseases.

At the Medical Society, on Nov. 10, 1890, Dr. S. West read a paper on the Relation of Asthma to other Diseases, of which the following is a brief abstract. He used the term "asthma" in the strictest sense of the word, and he gave a full definition of it, which was practically a short description of the disease. He then discussed its relation to various other lesions. He held that asthma stood in no relation to affections of the lungs, other than to emphysema and chronic bronchitis. He pointed out that it usually disappeared in patients who became affected with phthisis, and related two cases in illustration of this. With regard to affections of the heart, dyspnœa was often seen in connection with them, and paroxysms were not rare, but these cases of paroxysmal hurry differed entirely from true asthmatic paroxysms. True cardiac asthma was extremely rare and was most difficult to treat; it had no connection with angina pectoris. Referring to the relation of asthma to diseases of the stomach, he held that the cause of the asthma was not due to irritation of the gastric mucous membrane itself, but to the absorption and circulation in the blood of some product of an irritant nature. Cases of so-called "asthma verminosum" probably were similarly explicable. Dyspnœa was common in affections of the kidney, but true asthma was very rare. In uræmic conditions, respiratory disturbances were common, but they more nearly resembled those seen in diabetic dyspnœa. Illustra-

tions of the occurrence of asthma in association with gout and lead poisoning were then given. The connection of asthma with certain affections of the nose was first established in 1872, and it seemed to be proved that reflex neuroses sometimes arose in connection with such lesions as polypus, chronic rhinitis, paroxysmal sneezing, &c. The subject had been approached in two ways: a series of cases of asthma having been taken and the occurrence of nasal affection noted, and then a series of nasal affections in which asthma had been present. The result of analysis of these groups showed that there was some slight connection between the two, but that it was by no means constant. In some cases, however, the connection seemed exceptionally strong, instances being quoted where the growth of nasal polypi was associated with the onset of asthma, which latter disappeared upon the removal of the growths. He regarded hay asthma as a variety of the true affection, and he pointed out that the association of asthma with pharyngeal disease was very rare. Many affections of the neck and mediastinum were met with in which asthma occurred, but it was impossible to dissociate here the effects of pressure. A great deal had been written as to the association of asthma with diseases of the skin, but it appeared on the whole that this was only accidental, or both, perhaps, were the joint effects of a common cause. Urticaria was most frequent, then eczema, herpes, some of the exanthemata, psoriasis, syphilis, drug eruptions, acne, &c. He thought that a sufficient number of cases of asthma in association with cerebral affections had been recorded to make it more than a coincidence. It had been observed, though rarely, to alternate with insanity and with hysteria. The exciting causes were very many; for, like epilepsy, it appeared to depend on an unstable condition of the nerve centres, and explosion could therefore be excited reflexly by a number of causes. He adopted the hypothesis that there was an asthma centre in the medulla, which could be acted on from above by emotion, various psychoses, epilepsy, and some cerebral lesions; in the centre itself by uræmia and dyspepsia; from below, by disturbance of the special senses, such as of the olfactory and optic nerves, by stimulation of the nerves of common sensation, as of the fifth in the face, and by cutaneous irritant rashes. It could be acted on also by the branches of the pneumogastric distributed to the neck, thorax, heart, lungs, and stomach, and by the sympathetic through its branches from the intestines, kidney, and uterus. It affected many sets of muscles other than those proper to the bronchi, and therefore could only be of central origin. In conclusion, he regarded asthma as a reflex neurosis, producing spasm of the bronchi and of the diaphragm, associated with bronchial vasomotor disturbance, and an unstable condition of the respiratory centre. It so closely resembled epilepsy that Hughlings Jackson had defined it as a "respiratory convulsion." (Lancet, Nov. 22, p. 1101.)

CANCER OF THE BRONCHI AND LUNGS.—Diagnosis of.

Dr. W. Ebstein, of Göttingen (*Deutsche med. Woch.*, October 16, 1890), in an expansion of an address on this subject delivered by him during September of the present year, before the Congress of German Naturalists and Physicians at Bremen, treats of the diagnosis of cancer of the lungs and bronchi. Without attacking the vexed question of the exact point of origin of cancer in the bronchi, he divides the subject into two divisions, dealing first with cancer limited to the bronchi, and then with cancer beginning in the bronchi and spreading to the lungs. He relates two cases illustrative of these conditions, with great minuteness of detail. In the one, that of a man, aged 67, the disease had spread along the lymph channels and invaded a considerable tract of lung without giving positive indications other than those common to inflammatory affections of the parts attacked. In the second case the patient was aged 54, and the onset of the disease was attributed to a violent strain, which had set up much local tenderness. The physical signs were much more limited to the affected area; a small nodule had appeared on the surface some time before death, and secondary deposit in the brain had given rise to a partial ocular paralysis. The primary disease was found to be limited to a bronchus, but almost all the organs showed secondary deposit. Dr. Ebstein enters into a very long and exhaustive discussion of the various symptoms and physical signs, and of their value in diagnosis. He is led to conclude that the actual discovery of cancerous tissue either in the sputum or in the results of exploratory puncture forms the only positive diagnostic sign. Careful study of all the points in the history and course of the disease, taken in conjunction with the symptoms as they occur, may sometimes afford sufficient evidence to argue upon, but the secondary symptoms set up by bronchitis, emphysema, atelectasis, and the like are apt to make positive diagnosis impossible. Even microscopic evidence is not absolutely trustworthy, since changes may be brought about in epithelial cells in various phases of inflammation, which may render them hardly distinguishable from cancer cells. A certain degree of intermittent fever is believed to attend the development of bronchial cancer, but care must be taken to exclude the possibility of tubercle in any given case, as the two conditions are not antagonistic. Cachexia is not of necessity present in the earlier stages. That direct irritation of the bronchi may be a feature in the production of the disease is shown by the great frequency of cancer of the lungs and bronchi amongst workers in cobalt and nickel mines. (Suppl. British Med. Journal, Nov. 1, p. 33.)

DIPHTHERIA.—Advantages of Intubation in.

The following may be mentioned briefly as some of the advantages gained by intubation:—1. The friends are not frightened by the

idea of an operation, and their consent is not so necessary as for tracheotomy. 2. Intubation does not require any anæsthetic, and this we consider a most important point; for often the necessary giving of an anæsthetic in cases of tracheotomy is a direct cause of death, and always of much anxiety. 3. The operation may be undertaken at a much earlier period than is usually considered justifiable for tracheotomy, and can be far more easily performed without skilled assistance. 4. The avoidance of the hemorrhage and other dangers attendant on tracheotomy, and the avoidance of a fresh wound, which may become infected. 5. The air before entering the lungs is warmed and filtered by passing through the natural passages, instead of entering straight through the opened trachea. 6. The question of the advantage of being able to do without a skilled nurse is a debatable one. If all goes well, her presence is not so necessary as in tracheotomy. If the tube gets blocked it is always coughed out, and generally urgent symptoms do not return for a period of an hour or longer. But, on the other hand, if difficulty of breathing arise at once, the skilled nurse is helpless, and the child must die unless the medical man is promptly on the spot. This is a danger which must be well considered before doing intubation in private practice. It seems to us, with our present limited knowledge, that (1) tracheotomy is advisable in those cases where there is evidence of great malignancy, or of a tendency to great extension of membrane; (2) that intubation should be employed in cases which present themselves with dyspnœa as the most marked symptom of the disease, that it should be performed at an early period, and that should there be necessity for retaining the tube for a lengthened period, or evidence of any direct irritation set up by it, then tracheotomy should be substituted, and we may here remark that tracheotomy is rendered safer and easier of performance when an intubation tube is *in situ.* (Messrs. Bernard Pitts and William Brooke, Lancet, Jan. 17, 1891, p. 139.)

DIPHTHERIA.—Results of Intubation in.

We give the statistics of the results of intubation in diphtheria from three hospitals, and we hope that others will be forthcoming. Victoria Hospital for Children: Sixteen intubated, seven cured (no second tracheotomies); nine deaths (three second tracheotomies, all fatal); percentage of recovery, 43. We have given these results first, for we believe that Mr. Staveley, formerly house surgeon there, was the first to give intubation in diphtheria a systematic trial in London, and he has already published a most excellent account of his experience. At St. Thomas's Hospital, up to the present time, thirty cases have been intubated for diphtheria; of these eight had subsequent tracheotomy, four recovering. Of the twenty-two cases where intubation alone was employed eight recovered. This is a percentage of 40 on the whole number intubated. At Great

Ormond-street Hospital eleven cases were intubated by the house physician, with one recovery. It is only fair to add that, owing to the unfortunate early mortality, intubation was reserved for those cases which were least likely to recover, and tracheotomy practised for the more favourable ones. We may mention here that Cheatham of Louisville has recorded thirty-two cases with ten recoveries, and of the first fifteen of these only one recovered. All will allow that the results obtained at the Victoria Hospital and St. Thomas's Hospital are far more favourable than those usual after tracheotomy, since 25 per cent. recoveries after tracheotomy may be considered good, and we may safely argue that in the face of these results we are bound to give treatment by intubation a most serious consideration and an exhaustive trial. (Messrs. Pitts and Brooke, Ibid., p. 138.)

DIPHTHERIA.—Menthol in.

The antiseptic properties of menthol, especially in cases of diphtheria, have received strong testimony in an article by Dr. Herman Wolf in the *Therapeutische Monâtshefte* for September. He adopts the following form of application: A powder is prescribed containing one part of the drug to ten or twenty parts of sugar; this to be carefully applied by means of a camel's-hair brush to the inflamed and membrane-covered parts of the throat, which should have been thoroughly cleansed from all mucous secretions beforehand. If the nasal passages also are involved, the powder should be blown into the anterior nares and upon the posterior pharyngeal wall. If the process has invaded the bronchi, menthol may be sprayed during inhalation. In a somewhat large experience with it, Wolf declares that he has found the drug free from all toxic tendencies, while at the same time it is a complete and prompt local antiseptic in this class of cases. As he uses it, the drug is unobjectionable in odour and taste, and has more potency than many of the gargles and sprays that are in common use, but which are far more disagreeable. In the light of the latest investigations the rôle of antiseptic applications is strengthened in the treatment of this disease. The recent experimental work of Wintgens and others show, in regard to the Klebs-Löffler bacillus, that it is capable of producing an exceedingly poisonous albuminoid when cultivated in suitable nutrient media. These researches confirm the clinical value of those antiseptic applications that destroy the virulent bacillus, of which menthol is reported to be one. (N.Y. Medical Journal, Dec. 6, p. 632.)

DIPHTHERIA.—Resorcin in.

One of the few of the numerous drugs introduced in recent years which has stood the test of time is resorcin; it has been chiefly used for skin complaints, but has also been found useful in whooping-cough, &c. In the *St. Petersburger Med. Wochenschrift*, 1890, No. 20, Andeer of Munich gives a summary of its advantages in the treatment of diphtheria. He refers chiefly to French authors.

Leblond and Baudier have shown, in an exhaustive treatise, that in resorcin we have an antiseptic of the first rank; it exerts a destructive influence on micro-organisms, even in extremely dilute solutions, and in spite of the rapidity with which it is absorbed and again excreted from the body. Its easy solubility in all fluids, its rapid evaporation by heat, in addition to the completeness with which it mixes with the air, without any discomfort to the patient, render it suitable for the destruction of all pathogenic micro-organisms. Roux and Yersin have conclusively demonstrated that diphtheria only attacks open wounds, consequently all further injuries to the parts attacked ought to be carefully guarded against, so that all mechanical modes of removing the diphtheritic membranes are to be avoided, and the same may be said of the use of drugs for a like purpose. The latter are particularly dangerous on account of any excess which may fall on healthy tissues, so preparing fresh ground for the morbid process. Any antiseptics which may be used ought to have no injurious effects on the parts not attacked. Such an antiseptic is a 10 per cent. solution of resorcin in glycerine. Several severe cases of diphtheria have been successfully treated in this way by Leblond, Baudier, Besnier, Thorens, and others. They advise that the solution should be applied by means of a brush every hour during the day and every two hours during the night; also that the air of the room should be kept saturated by means of a spray apparatus containing a watery 5 per cent. solution of resorcin. The conclusions to which the above authors have come are as follows: 1. When the larynx is not affected the disease usually disappears in from six to ten days. 2. If the treatment is adopted at the commencement of the attack, the formation of membrane is very slight, and the larynx generally escapes. 3. In advanced cases, if the glands are swollen, and plaques of membrane numerous over the back of the throat, after forty-eight hours' treatment by resorcin the swelling of the glands begins to subside, and the formation of any fresh membrane is prevented. 4. In all cases the general state of the patient remains satisfactory, the sustained appetite and clear voice proving that there is no serious constitutional affection. 5. If the larynx is attacked resorcin is not so beneficial; nevertheless, the drug may still be used advantageously by fumigation and pulverisation if there is sufficient space in the larynx to prevent asphyxia, or if tracheotomy is likely to prove of permanent relief. (Lancet, Dec. 20, 1890, p. 1347.)

EMPYEMA.—Results of Treatment in.

Professor König, of Göttingen, places on record (*Berl. klin. Wochenschrift*, No. 10, 1891) the results obtained by him in the treatment of 76 cases of purulent pleuritic effusion during the last twelve years. Of the 76 cases, 10 ended fatally, but these were for the most part advanced cases from the beginning of treatment,

some pyæmic, others with advanced tuberculous disease of the lung, &c.; 36 of the successful cases were simple empyema, 16 were complicated by fistulous openings already formed, 6 with putrid pus pent up, and 3 with openings into a bronchus; 9 cases were due to direct injury—gunshots, stabs, or other wounds. Of 66 cases, 59 could be regarded as cured, or, put in a different way, 71 per cent. of the cases treated were well and fit for work within two months. Details are given of the steps of the usual operation adopted. The opening was generally made at the level of the fifth or sixth rib and about the area of the anterior axillary line. Resection of a portion of rib is advised in most cases. If evacuation by simple opening is not complete it may be advisable to wash all thick shreds away with a stream of warm water, but antiseptic fluids are not necessary, nor is any further irrigation as a rule required if a good opening is maintained. The injection of carbolic acid solutions is condemned as unnecessary and harmful. A double incision is not required. The bandages should be made to include the arm on the affected side, and the patient should be encouraged to lie on that side, and for the first few days his body should be tilted three or four times a day, either by himself or by an attendant, so that the opening in the chest wall becomes the most dependent part. This is to ensure drainage from all parts of the pleural cavity in turn, but does not necessitate a change of the dressing after each change of position. The temperature must be taken as the guide to indicate whether the pus is being freely drained, and on any rise the wound should be dressed and any obstruction to the flow of fluid removed. (Suppl. British Medical Journal, March 21, 1891, p. 89.)

KOCH'S TREATMENT OF TUBERCULOSIS.

Dr. Francis Williams, after an exhaustive and critical review of the published records of cases treated by Koch's method, sums up the position of affairs, at the time of writing, as follows:—For the treatment of lupus and for purposes of diagnosis the remedy will probably be of value; in the treatment of tubercular diseases of the joints, in connection with surgical treatment, it seems likely to have a field of usefulness. Where the process has made little progress in the respiratory organs, there is reason to hope that we are to have a remedy better than anything thus far known, but great numbers of patients in advanced stages of consumption will be sadly disappointed. In the treatment of tuberculous disease in animals it will probably lead to the saving of large sums, and as a prophylactic save human life by diminishing the chances of the spread of the disease to man. Much criticism has been made about the delay in publishing the secret; but it is probably difficult to make the remedy of uniform strength and quality. The fluid is a violent poison, and carelessly-made preparations would soon bring the whole method into disrepute. (Amer. Journal, Feb. 1891, p. 179.)

KOCH'S METHOD IN TUBERCULOSIS.

Dr. Baruch, in a summary of twenty-one cases of tuberculous disease treated at the Montefiore Home for Chronic Invalids, New York, says:—My data refer to seventy-one injections in twelve male and nine female patients. The reaction was undoubted in every case, although somewhat less than is announced from abroad. Several of the cases, male and female, whose temperature had been normal, presented a rise of one to two degrees just before the injection. Every case of phthisis presented a rise of temperature within twenty-four hours. In one case of caries of the vertebra, with pneumothorax, the temperature also went up two degrees. One case of ulceration (of doubtful type) in the left cervical region, with fistulous canal, resisted gradually-advancing injections until 5 mg. were reached, when the temperature rose from 97.8° to 102.4°. To-day it is again 97.4°. There is an increase in the discharge now; no change in patient's general condition. A jaundiced hue of the skin was noticed in one case of phthisis; also nose-bleed, headache, and nausea. Cough and expectoration increased in four cases, was diminished in ten cases, remained the same in six, and appeared anew in one regarded as cured. Decided nausea and headache occurred in eleven cases. Every case reached a normal temperature once or oftener in the course of twenty-four hours. *Pulse:* The lowest pulse-rate was 44, the highest 134. *Respiration:* The lowest recorded was 17, the highest 45. *Temperature:* The lowest recorded was 97.4°, the highest 103.2°. *Weight:* Of eight patients weighed, one lost one-half pound, one lost one pound, one gained three-quarters of a pound, one gained one-half pound. The others are unchanged. The most remarkable point in my experience is that in two cases—which were almost ready to be discharged on account of abeyance of symptoms and physical signs, and a gain of weight of twenty-one pounds in one and of thirteen and one-half pounds in the other, under hydrotherapy—one lost one pound and the other three-quarters of a pound since the injection. These cases would have been regarded as practically cured, had not the injection of 1 mg. of lymph caused decided reaction. One of these cases is, perhaps, more completely prostrated by the lymph than any other. I regard this experience as a complete vindication of Koch's view of the diagnostic value of the injection in suspected tuberculosis. (Dr. Simon Baruch, Medical News, Dec. 27, 1891, p. 695.)

KOCH'S METHOD IN TUBERCULOSIS.

The cases under treatment by Koch's method are progressing favourably. In my wards there are eight selected cases of pulmonary tuberculosis and two of tuberculous pleurisy. The dose in the phthisis cases has been gradually increased, and some of the patients received to-day (December 22nd) 1 cc. of the one-per-cent solution. Although the febrile reaction in each instance was prompt

and definite after the first or second injection, the subsequent inoculations have not been followed by any special febrile reaction, even with the larger quantities injected. There has usually been an increase in the cough, and in several cases a marked increase in the expectoration. A special feature in three of the cases has been the enormous increase in the bacilli in the sputa. The ordinary cover-glass preparation looked, in some instances, as if taken from a pure culture. The change in the appearance of the bacilli, which has been noted by many observers, is quite marked. No definite alterations have, as yet, been detected in the physical signs. In the tuberculous pleurisy, the reaction has been much more intense than in the pulmonary cases. A very wholesome dread of the treatment has been aroused in the community by the newspaper reports of death. It is remarkable that there have been not more than two or three voluntary applications at the hospital, and several very suitable early cases, which were sent for, refused to subject themselves until the method had been more fully tried. On the surgical side, Dr. Halstead has five cases of bone and joint tuberculosis under treatment, and one of lupus, which has displayed all the characteristic phenomena so often described. In surgical tuberculosis the reaction has been in each instance much more intense than in the phthisis cases. In Dr. Kelly's ward a case of tuberculous peritonitis is under treatment. The patient some months ago had the tubes removed and at the operation the peritoneum was found covered with tubercles. A condition of tuberculous salpingitis existed. She made a good recovery and left the hospital with a small sinus at the lower end of the abdominal incision. After the injection of one-tenth cc. of the one-per-cent. solution she had intense febrile reaction, reaching to 104°, and the abdomen became tender and slightly swollen. There was no increase in the discharge from the sinus and no swelling of its walls. The fever kept up for three days. (Dr. Wm. Osler, Johns Hopkins Hospital, New York, Medical News, Dec. 27, 1891, p. 694.)

KOCH'S METHOD IN TUBERCULOSIS.

At the end of the second week of investigation of the treatment of tubercular disease by inoculation with Koch's lymph, in the wards of St. Luke's Hospital, the first profound impressions made upon the observer of its potency and elective affinities have only been strengthened. As a thorough clinical study of a larger number of cases would be impossible, only seven new patients have been inoculated, making the total number of cases at present under treatment twenty-two. The new cases are as follows: One case of aggravated eczema of the hands, orbicular in form, inoculated as a control-experiment; one case of lupus of the uvula and contiguous portions of the throat; one case of tubercular glands (cervical and submaxillary), with doubtful signs of infiltration at the apex of one lung; one case of epithelioma of the hand, inoculated with the

view of studying the possible effect of treatment; one case of tubercular disease of the ankle-joint; one of hip-joint disease; and one of pulmonary tuberculosis in its incipient stage. The rule has been maintained of making use of 0·001 gramme for the initial inoculation in adults, of 0.0005 gramme in children. The rule is also adopted of continuing the same dosage until reaction ceases to be developed, and of increasing its strength by 0·001 gramme successively as reaction ceases to appear. In cases of lupus, Koch's suggestion that inoculations be given at intervals of a week or longer—that is, only after local reaction has subsided—is now followed. The observation has been made that the systemic disturbances in this disease are less severe than those exhibited in other forms of tubercular disease, the inoculations being of similar strength; inasmuch as the reaction in several instances has been delayed as late as twenty-four hours, and has then been characteristic, daily inoculations are not given in any instance. Local irritation at the site of the inoculations has not occurred in any of the cases. The possibility of obtaining equally good results with a smaller amount of lymph than that used by German investigators has apparently been demonstrated (0·004 gramme is the largest dose used in any case). By this we see that the distressing, if not grave, symptoms of very acute reactions may be avoided. The marked systemic disturbance, aside from the rise in temperature, in a number of patients treated with *small* doses, has been impressive, and has suggested caution in treatment. The appearance and condition of the patient during the period of reaction in many instances have been suggestive of the presence of an acute infectious disease. A low arterial tension has obtained as a rule. (Dr. F. P. Kennicutt, New York, Ibid, p. 692.)

NASAL IRRIGATION.—New Method of.

Pins, of Vienna (*Mercredi Médical*) uses a small Wolfe bottle, to the longer tube of which a mouthpiece is attached by rubber tubing, while a nozzle is similarly attached to the short tube. The patient blows the liquid into one of his nasal passages, and, as the forced expiration occludes the rhinopharynx, the liquid escapes by the other nostril. (American Journal, Jan. 1891, p. 93.)

NASAL POLYPI.—Hamamelis and Alcohol in.

In an article on the Treatment for the Radical Cure of Polypi of the Nose (*Med. Record*, June 18, 1890) Dr. E. Harrison Griffin recommends spraying the nose night and morning with sprays of witch hazel or of alcohol, at first dilute and gradually increased to full strength, for at least one year after thorough removal of the polyps with the wire snare. He reports a number of illustrative instances, in one of which he removed fully three hundred polypi at various sittings, and in another more than one hundred in the course of a week. Caustics and cautery after extirpation he finds to be almost invariably followed by renewed growths. (Ibid, Dec., p. 637.)

PHTHISIS.—Treatment of Pyrexia in.

My conclusions as to the treatment of pyrexia in phthisis are: 1. The pyrexia due to tuberculisation is best dealt with by derivative measures, such as counter-irritation, salines promoting secretion from other organs, and assisting expectoration. 2. That in the treatment of the pyrexia accompanying softening and excavation, measures which hasten these processes are found to be most successful, especially if combined with antiperiodics, such as quinine, salicin, salicylate of sodium, to moderate the fever. 3. That the use of medicines solely directed to lowering the temperature of the body without promoting increase in the natural secretions is generally inadvisable. 4. That our object in the treatment of phthisical pyrexia should be, not the reduction at all hazards of the temperature, but its lowering to the limits compatible with the comfort and well-being of the patients, and for this end that much may be done, in addition to the discriminating use of medicines, by the simple means of frequent food combined with stimulants and rest in bed. (Dr. C. Theodore Williams, British Med. Journal, March 28, 1891, p. 685.)

PHTHISIS.—Heart Affections in.

At a meeting of the Isle of Wight District of the Southern Branch of the British Medical Association, on Oct. 30, 1890, Dr. Robertson, of Ventnor, read a paper giving the results of an analysis of upwards of 600 cases of consumption treated by him at the Ventnor Consumption Hospital in the years 1888, 1889, and 1890. He pointed out how much more frequent heart troubles were than was generally supposed, and that although they were probably commonly functional in character, their significance was not greatly minimised by that probability, since they were symptomatic of permanent changes in the blood and vascular apparatus. Dr. Coghill endorsed what had been said as to the frequency with which heart damage occurred in cases of consumption, and quoted an axiom of his earlier days to the effect that if it became necessary to examine the lungs of a patient, it was necessary to examine the heart also. He referred to the constitution of Niemeyer's pill, as showing that the care of the heart was an old-established principle in the treatment of consumption. (British Med. Journal, Nov. 29, 1890, p. 1242.)

PLEURITIC EFFUSIONS.—Micro-Organisms in.

In the *Archiv für Exp. Path. und Pharmakol.* (xxvii., Hefte 4 und 5) E. Levy publishes the results of bacteriological investigations which he has made on fifty-four cases of pleuritic effusion. Plate and tube cultures were made in addition to the ordinary microscopic examinations. Of these fifty-four cases, thirty-seven were serous and seventeen purulent. Six cases occurred in connection with typhoid fever, of which five were serous and one purulent; nineteen with pneumonia and influenza, ten serous and nine purulent; four-

teen cases were tubercular, thirteen serous and one purulent; acute rheumatism and chronic nephritis contributed one case each; three serous effusions occurred with new growths, and four in cardiac disease; whilst six others were from other causes. In three cases of serous effusion in the typhoid cases cultivations gave no results; whilst in the two others the staphylococcus albus was found. In the last named the effusion did not become purulent, but subsided without surgical interference. In the one purulent case in connection with enteric fever the same micro-organism was found, and the case did well after the pus was withdrawn. Of the serous exudations of the second group—pneumonia, &c.,—in three no organism could be discovered, in one the staphylococcus pyogenes albus alone was present, and in another this organism together with the pneumococcus. In the remaining six cases and in all the purulent effusions the diplococcus was separated. In cultivation experiments with the exudation from the tubercular cases no micro-organisms could be found, but this does not agree with the results published by other authors, in which tubercle bacilli have been found, although the fluid was serous throughout the whole of the case. In four cases of cardiac disease in which the effusion was hemorrhagic, the staphylococcus pyogenes albus was found. In all the other cases the results were negative. Levy concludes as follows: 1. The great majority of serous-fibrinous pleuritic effusions contain no micro-organisms. 2. The absence of micro-organisms, when the effusion is purulent, points to the probability of the case being a tubercular one. 3. The presence of the staphylococcus pyogenes in serous effusions in no way indicates that it will become purulent. 4. The discovery of Fränkel's pneumococcus in serous effusions in cases of pneumonia, after the crisis has passed, does not make the prognosis more grave, as it does not increase the probability of the occurrence of an empyema. (Lancet, Nov. 29, p. 1172.)

PNEUMONIA.—Acute Transitory Œdema of Lung in Crisis of. Dr. Max Kahane, of Vienna, records two remarkable cases of acute transitory œdema of the lung occurring just at the commencement of crisis in the course of acute pneumonia (*Centralblatt für klinische Medicin*, No. 10, 1891). Two labourers were under observation at the same time, all points of the two cases closely resembling one another. The patients had both been more or less addicted to alcohol, and had both reached the point of crisis from ordinary acute pneumonia, the temperature having just begun to fall. When seen at this period they were found to be extremely collapsed, with very weak heart action, covered with cold sweat and cyanotic. The chests were examined, and in both cases all the physical signs of œdema of the lung were present over the greater part of both lungs. Restoratives being promptly applied, a marked change was almost immediately observed, and on further examination it was found that the signs of œdema were rapidly clearing up, and in a very

short time had disappeared entirely. The normal course of "crisis" followed, and the patients made a good recovery. There was no excessive expectoration of watery fluid from the lungs after the subsidence of the œdema. Œdema of the lungs is not by any means rare after acute pneumonia, but it is almost always fatal. The sudden onset in cases where the heart's action had become so greatly depressed, just at the moment when the great change of crisis had begun is remarkable but not easily explainable. (Supp. British Medical Journal, March 21, 1891, p. 89.)

PULMONARY CAVITIES.—Diagnosis of.

Professor Rumpf, of Marburg, in the course of an address to a local medical society (*Berliner klinische Wochenschrift*, No. 44, 1890), discusses the diagnostic value of the change in the pitch of the percussion note over a pulmonary cavity when the mouth is closed or open, commonly known in Germany as Wintrich's sign. He points out that this, like so many other signs of cavitation in the lung, is not always present in the same case. Its occasional absence is explained by the probable obstruction of the bronchus leading directly into the cavity. This obstruction may sometimes be overcome by altering the position of the patient during percussion as suggested by Gerhardt and others, but even this plan is not always successful. By making careful comparison of the percussion note obtained over a cavity on deep inspiration with the mouth and nose open, and then, with these apertures closed, Dr. Rumpf succeeded in eliciting the characteristic change of pitch in four cases in which Wintrich's sign under ordinary respiratory conditions was only occasionally present. The accuracy of the diagnosis was in each case proved by post-mortem examination. (Supp. British Medical Journal, Nov. 15, 1890, p. 49.)

STENOSIS OF THE TRACHEA AND LARYNX FOLLOWING TRACHEOTOMY.—Treatment by Intubation.

Messrs. Bernard Pitts and W. F. Brook publish the records of four cases in which this method was followed, and make the following general remarks upon the cases: "It may be stated without much fear of contradiction that when ordinary means have been used to leave out the tracheotomy tube, intubation by O'Dwyer's method should be at once given a trial, and that if difficulty arises, or no definite improvement speedily ensues, then a thorough exploration of the parts should be made, cicatricial tissue should be freely and completely removed, and then intubation again be tried without allowing time for recontraction. The advantages of O'Dwyer's method over any other form of dilatation are so obvious, and the risks in such chronic cases are so small, that if this form of intubation were only applicable to such cases we would still owe a debt of gratitude to O'Dwyer for placing this means of treatment at our disposal. It may be in place here to draw attention to a few special points in

the intubation for chronic stenosis. 1. As regards the force required in introducing the tube: In dealing with acute inflammation any attempt to use force would be likely to end in disaster, but in these stricture cases a certain amount of force is absolutely necessary, and if used in the right direction can be safely employed. It is often necessary to press continuously the point of the tube against the contraction, and so there may be a danger of causing asphyxia. It is a practical point of some moment to get over this difficulty, and this can be done by withdrawing the introducer for a short distance, keeping the tube in place with the forefinger, and so allowing some slight passage of air through the tube; pressure is then again applied, and the stricture as a rule yields. 2. A much larger tube can be tolerated, and is desirable, than is laid down for the treatment of acute cases. 3. The time that the tube may be left in is well shown in the cases. 4. Use of the string: In all cases where the tube was expected to remain in for more than twelve hours the string was removed. 5. Feeding: As in acute cases, immediately after the first commencement of intubation pulp food was found to be the best, fluids causing cough. 6. Extraction of the tube with the extractor is always the most difficult part of the operation, and it certainly is so in these cases, owing to the unusual length of the tubes employed. This special difficulty is caused by the length of the tube, *plus* the length of the beak of the extractor being greater than the distance between the cords and the hard palate, against which the angle of the extractor will thus impinge before the point of the tube is out of the larynx. This difficulty was overcome by having a shorter beaked extractor made, and by pushing the point of the extractor as far as possible into the tube before attempting to remove the tube." (Lancet, Jan. 17, 1891, p. 137.)

THORACENTESIS.—Use of Sodium Chloride Solutions.

After experiments on animals and later by trials on men, Dr. S. Lewaschew (*Deutsche med. Wochenschrift*, Dec. 25, 1890) reached the following conclusions: A sterilized sodium chloride solution, introduced by gravity into the thoracic cavity to take the place of the exudate during thoracentesis, prevents marked fluctuations in intrathoracic pressure and permits a nearly complete removal of the effusion. It not only does no harm to the inflamed pleura, if the proper precautions are taken, but seems to influence favourably the inflammatory process. Moreover, the operation is perfectly painless. In Lewaschew's cases, after the procedure the inflammation gradually subsided and the greatly diluted exudate was completely absorbed. In non-suppurative pleurisies without exception, and in recent cases of the suppurative form, no new effusion formed, one operation being sufficient. If the operation was performed after the subsidence of the acute symptoms, recovery rapidly proceeded; if performed during the acute inflammatory stage and while the effusion was increasing, recovery was slower. In all cases a decided

rise of temperature with increased diuresis and pulmonary capacity, and decided decrease in the pectoral dulness, shortly followed the operation. These symptoms were probably the effects of absorption of the highly-diluted effusion. (Medical News, Feb. 7, p. 167.)

TUBERCLE BACILLI IN SPUTUM.—Method of Examining.

Dr. Biedert of Hagenau, in Alsace, has devised a new and considerably surer method for the discovery of tubercle bacilli in sputum. He collects a tablespoonful or more of the sputum, mixes it well with a glass rod, takes some of it and stirs it together with two tablespoonfuls of water and four to eight drops of solution of caustic soda according to the density of the sputum, and then boils it, stirring it the while in a shallow cup, gradually adding four to six tablespoonfuls of water till he gets a pretty thin fluid mass. This he allows to stand for two hours in a high glass tapering as finely as possible downwards, and all the formed particles sink with the tubercle bacilli to the bottom. Then he pours off the fluid, retaining the sediment, parts of which he takes out with a platinum needle and rubs them fine on a cover-glass. When the preparation is dry he passes it through a flame, stains it with a carbolised solution of fuchsine, and then bleaches it with 25 per cent. sulphuric acid. If there are any tubercle bacilli they remain red, and are thus distinguishable under the microscope. Even a single bacillus is discoverable in this way, whereas the older methods yielded a positive result only if there were many. (Lancet, Feb. 7, 1891, p. 343.)

TUBERCULAR PERITONITIS AND DOUBLE PLEURISY.

At the Clinical Society, on Oct. 24, 1890, Dr. Finlay gave the clinical history of a case of Tubercular Peritonitis and Double Pleurisy, resulting in recovery. The patient, a youth of seventeen, by occupation a barman, came under his care in Middlesex Hospital on Oct. 26, 1888. There was an indefinite history of consumption in some relatives on the mother's side and of a slight attack of ascites with whooping-cough in his own case when only three years of age, otherwise he had always enjoyed good health and been sober. Nine days before admission he began to suffer from some abdominal pain and swelling. The latter condition gradually became more marked, and on admission he was found to have a considerable amount of ascites, the abdomen measuring 34 in. in girth at the level of the umbilicus. His temperature was 100°, pulse 120, and respiration 24; tongue rather dry and coated. In the chest at both posterior bases there was impaired resonance with diminished vocal fremitus and scarcely audible breath sounds. At the line of commencing dulness on the left side faint friction sounds were present. The area of dulness, especially on the left side, gradually increased for about a fortnight, the friction sound became more marked, he lost weight and sweated at night. For a

few days at first the ascites also increased, the girth of the abdomen measuring 38 in. on Nov. 2nd, but it soon began to diminish, and by Nov. 13th the girth amounted only to 32½ in. The temperature also at this time was noted to have been normal or subnormal, with only one exception, for several days, having previously ranged between 99·2° and 103·2°. On Nov. 30th the ascites had disappeared altogether, and the pleural effusion was rapidly declining. Coarse friction sounds were heard over the lower half of the left chest, but these soon cleared up, and he continued to make steady progress in convalescence. On Jan. 30th, 1889, he was sent to a seaside convalescent home. The abdomen presented a diffused sense of resistance on palpation over its lower half, suggesting matting together of portions of the intestines; while in addition masses of more definite character were felt in the left upper umbilical and iliac regions and in the right lower umbilical region. After three weeks' residence at the seaside he returned to his work, and presented himself for examination at the hospital on March 13th, when it was found that the masses near the umbilicus were less plainly felt than formerly, and that one in the left iliac fossa had disappeared. He had gained 10lb. in weight, and the condition of his chest was quite satisfactory, presenting nothing abnormal except slight impairment of resonance and weak breathing for a couple of inches at the posterior bases. The case was brought forward not because there was anything unusual in recovery from tubercular peritonitis, but to accentuate the fact that the reverse was the case, recovery being much more frequent than had been commonly thought, especially by the older writers. The statements made by various writers in text-books on medicine were quoted, and statistics given of thirty-five cases occurring in the Middlesex Hospital, of which nineteen were discharged as recovered or relieved. Reference was also made to a paper by Dr. Osler of Johns Hopkins University, in which a similar view was taken to that put forward in connection with the present case as regards the prognosis in tubercular peritonitis. (Lancet, Nov. 1, p. 924.)

TUBERCULAR PERITONITIS.—Surgical Treatment of. The surprising and inexplicable success which has attended the opening of the peritoneal cavity for the treatment of tubercular peritonitis, is the subject of an editorial in the *University Medical Magazine* for November. Evidence has been accumulating till it is now convincing, that even an exploratory incision is frequently followed by permanent cure of the local tubercular processes. (*Boston Med. and Surg. Journal.*) König (*Centralblatt für Chirurgie*, No. 35, 1890) has collected 131 cases of peritoneal tuberculosis treated by abdominal section, of which 23 were greatly improved; 84 were cured (65 per cent.); of these cases 30 (24 per cent.) exhibited no signs of intra-peritoneal tuberculosis for several years following abdominal section. In only 3 per cent. could death be attributed to

the operation. As to the method by which these cures were obtained, examination of the cases shows that there was only one condition common to all; that is, the belly was freely opened, and a certain amount of intra-peritoneal manipulation was practised. Even the employment of anti-bacterial agents seems to be absolutely without influence, except that apparently a greater percentage of cures followed where no disinfectants were used. A question of major importance is as to whether only certain forms of peritoneal tuberculosis can be cured by section. As is well known, the effusion may be serous, sero-fibrinous or purulent; may be circumscribed or diffuse. The tubercles may vary in size, being miliary in one case, in another as large as a hazel-nut. The peritoneum may be smooth, roughened, thickened, or covered with a pseudo-membrane. In so far as clinical studies go, it would seem that all these different forms have undergone resolution after abdominal section, and consequently that they are all curable. Peritoneal tuberculosis is dependent upon the extension of the tubercular inflammation from adjacent organs, or upon direct infection, by means of the bacilli circulating in the blood. Phillips found the lungs involved in 92 per cent. of the cases, the pleura also in 56, and the bowel in 75. Intestinal invasion by tubercle is frequent, the serosa becoming quickly involved, but this involvement may remain strictly localized, and may undergo spontaneous resolution if the original source of infection, the intestinal lesion, cicatrizes. When, however, the peritoneal involvement comes from a large organ, and is extensive, it is as difficult to conceive the rationale of spontaneous resolution as it is to explain in what way operative procedure, except that of total ablation of the disease, can possibly be of the slightest avail. Yet the fact remains that a gratifying percentage of success follows simple opening and intra-abdominal manipulation in cases of tubercular peritonitis. (Journal American Med. Association, Dec. 6, 1890, p. 827.)

TUBERCULOSIS IN CHILDREN.—Pneumonic Form of.

According to Hutinel (*Rev. Mens. des Mal. de l'Enf.*, June, 1890), in the acute form of tuberculosis in children the apices of the lungs are frequently uninvolved, tubercles being generally disseminated throughout the remainder of the organs. A very interesting form of tuberculosis is that which presents the appearance of pneumonia. In a case of this character there was malaise for fifteen days with slight elevation of temperature. Eight days later there were loss of appetite, vomiting, and cough. Physical examination showed dulness in the supra-spinous fossa, murmur, and bronchophony—in a word, there were signs of pneumonia in the superior lobe of the lung. Defervescence followed, but the tongue remained dry, the general condition was bad, and the temperature rose. Tuberculous pneumonia was diagnosed, and in a few days the child died with phenomena of meningitis. The autopsy showed extensive caseous

pneumonia. In children, a pneumonia which has not resolved by the eighth day is almost always tubercular in character. In a second child, who had been sick only three days, there were signs of pneumonia at the apex, but there were also cavernous râles at the apex, rough breathing, and fever to an unusual degree. Tuberculous pneumonia was diagnosed, and this diagnosis was subsequently found to be correct. Such possibilities must be remembered in treating pneumonia, thus allowing a certain reserve as to prognosis. The prognosis of ordinary pneumonia in children is always favourable, while that of tuberculous pneumonia is uniformly bad. (American Journal, Feb. 1891, p. 215.)

TUBERCULOSIS IN CHILDREN.—Primary Infection in the Bronchial Lymph Glands.

At the New York Academy of Medicine, Jan. 20, 1891, Dr. W. P. Northrup read a paper on this subject. He said that the object of the paper was to illustrate and strengthen the theory put forth in the title. In the New York Foundling Asylum the records of one hundred and twenty-five post-mortems on cases of general tuberculosis, in which the details were sufficiently clear to classify them carefully for the purposes of the paper, furnished the following analysis: 1. Thirty-four indeterminate cases, in which the lesions were so extensive, involving the organs of the thoracic and somatic cavities, bronchial lymph glands, and mesenteric as well, that the point of primary infection could not be determined. 2. Twenty cases of bronchial gland infection; cheesy masses in lungs; general tuberculosis. 3. Forty-two cases in which only cheesy masses were in the bronchial lymph glands; general tuberculosis. 4. Thirteen cases in which the bronchial glands were cheesy; the only other tubercles in the body being discrete miliary bodies in the lungs. 5. Thirteen cases in which all the tubercles of the body were in the bronchial lymph glands. 6. A group of three cases standing out in the one hundred and twenty-five in which the primary infection was obviously in the mesenteric glands. With this group a few miscellaneous cases were used in unclassified relation. Experiments by Dobrolousky and Kassokowicz were quoted to show that bacilli can pass the mucous membranes and develop their brood in the lymph glands without showing any trace of the point of their entrance. A summary of the 125 cases of general tuberculosis at the New York Foundling Asylum was given as follows: Eighty-eight were of primary bronchial gland infection; 3 were of mesenteric gland infection; 34 were indeterminate. Nine cases were added from Drs. Van Giesen and Loomis. Dr. Northrup believed that in such cases the inoculation cure of Dr. Koch gave hope of its greatest achievement. This latent tuberculosis he thought might easily account for some of the accidental temperatures experienced in inoculations. (New York Med. Record, Feb. 7, 1891, p. 186.)

WAVY RESPIRATION.—Its Mechanism and Meaning.

What is called indifferently wavy, jerky, or interrupted respiration is not infrequently observed, mostly at the apex of the lungs, and is often regarded as one of the early signs of pulmonary phthisis. Various explanations of it have been given, and not improbably the term is applied indifferently to several auscultatory phenomena which closely resemble one another in character, but are due to different causes. I shall not venture on a general discussion of the subject; but I am quite satisfied from long observation that the common and main cause is the pressure exerted by the heart during its rhythmical movements on the neighbouring lung tissue. Wavy respiration, is, as is generally stated, mainly and best heard during inspiration and is not infrequently heard only during inspiration; and although it is sometimes audible over the greater part, or the whole, of both lungs, it is more frequently limited to the apices and to the immediate neighbourhood of the heart. I believe it is much more common on the left than on the right side. That the alternate contractions and dilatations of the heart must in some degree directly affect the lungs in the sense of causing perturbations in the otherwise uniform movements of respiration is too obvious to need discussion. It is also obvious that, other things being equal, such perturbations must be greater near the heart than at a distance from it; must be greater and more widely diffused when the heart is acting violently, especially if it be dilated, than when the heart is healthy and acts healthily; and must be greater in any comparatively thin portion of lung confined between the heart on the one side and any solid or unyielding expanse on the other, than in lung tissue not thus circumstanced. (Dr. J. S. Bristowe, British Med. Journal, Nov. 29, 1890, p. 1236.)

WHOOPING COUGH.—Transitory Blindness in.

Dr. Geo. W. Jacoby in an interesting communication draws attention to the fact, that in whooping cough as well as in other acute diseases, sudden transitory blindness may occur, from which complete recovery is made and with re-establishment of perfect vision. Dr. Jacoby records two cases upon which he makes the following comments:—The first case—with the sudden onset of total blindness, with rigidity of the pupils and slight retinal changes, with rapid re-establishment of the light reflex and vision in the right eye, followed by improvement of the same factors in the left eye, together with complete restoration of vision and disappearance of all ophthalmoscopic changes in the retina in less than two weeks, all of which occurred without any other cerebral symptoms whatever—cannot possibly be understood in any other way than by the assumption of a cerebral œdema. Whether this œdema was retrobulbar alone, or also occupied a place between the corpora quadrigemina and the occipital lobes, cannot be positively answered. On account of the

re-establishment of the pupillary action to light inside of twenty-four hours, it would seem that the œdema anterior to the corpora quadrigemina must have been rapidly but unequally absorbed. As the re-establishment of the reaction to light was accompanied by re-establishment of vision and disappearance of retinal changes, it is probable that the entire œdema was situated anteriorly to the corpora quadrigemina. A question which I was unable to solve, and which would be of importance in this connection, is whether the pupillary reaction set in before a return of vision took place. To me it seemed as though both occurrences took place at the same time, although, on account of the rapidity of the amelioration, it is impossible for me to express myself upon this point with any degree of certainty. The second case is, if anything, even still clearer. This child had marked symptoms of a cerebral type, followed by blindness with retained reactions of the pupils to light, followed first by hemianopsia and then by a gradual restoration of perfect vision, the entire period covered by these symptoms being but twelve days. The case throughout was precisely like those which occur during scarlet fever and which are termed "uræmic," except that here there was at no time any question of kidney disorder. What other affection than an œdema—at first implicating both occipital lobes, and then, as absorption set in, limited, for a short time only it is true, to one occipital lobe—can explain this case I am unable to see. (New York Medical Journal, Feb. 28, 1891, p. 239.)

WHOOPING COUGH.—Peroxide of Hydrogen in.

I am sure there is nothing so near to a specific for this affection. The only difference I have instituted in the employment of it in this disease consists in prescribing it in the form of ozonic ether. I prescribe it for children in this form, in doses of from ten to sixty minims, diluted with half a fluid drachm of spiritus tenuoris and four drachms of water, to be taken four times a day, with a little more water if that be preferred. But I also prescribe the ozonic ether in this disease by inhalation from the Siegel spray inhaler. In one instance, where the paroxysms were as severe as I have ever seen them, they were arrested at once by this inhalation, and were held in such control by continued inhalations that what may be called a "cure" was the immediate result. As to the power of the oxygen to control muscular spasm, I repeat with still more insistance its value. In practice I have availed myself of the peroxide with ether, not only in whooping-cough, but also in asthma and in angina pectoris. Here the ethereal solution can be used by inhalation in its simple form, or combined with amyl nitrite, or other body of the antispasmodic class that will admix with ether and diffuse with it. In these affections I administer by inhalation in a manner that will be demonstrated in the last section of this essay. (Dr. B. W. Richardson, Lancet, March 28, 1891, p. 709.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

ABDOMINAL ABSCESS.—Some Forms of.

Abscesses may form in many positions in the abdominal walls or cavity, and may be produced by a variety of causes. They may, in the first place, be intra-peritoneal or extra-peritoneal; the latter may be parietal or visceral. Abscess in the anterior abdominal wall, inter-muscular or subcutaneous, though often met with and sometimes puzzling in origin, is a less obscure subject than that of the deeper forms of suppuration, and may for the present also be set aside. Many extra-peritoneal abscesses are due to visceral lesions—i.e., are peri-visceral—such are peri-nephritic suppurations, &c.; others are due to bone or joint lesions—spinal disease, sacro-iliac disease, and so on. A few arise from the tracking downwards of empyemata or other intra-thoracic collections of pus; some are obviously traumatic. But after excluding all these, there is still a large residuum that requires consideration; that receives very scant, if any, notice from most writers, and that ought to be, I believe, recognised as due to inflammation of lymphatic glands. Intra-peritoneal abscesses are usually due to visceral lesions in which the mischief has spread to some part of the surface of the affected organ that is covered with peritoneum. Others result from a primary peritoneal lesion; such are some of the tubercular abscesses. Others are obscure in origin—for example, subphrenic abscess. Others, again—primarily extra-peritoneal (parietal)—reach the peritoneum by direct extension. Diffuse suppurative peritonitis is no doubt most frequently due to the escape of certain irritating material into the peritoneal cavity. Such a condition is seen when one of the hollow viscera becomes perforated and its contents leak into the general peritoneal sac. Occasionally, of course, diffuse purulent peritonitis arises from other causes. Local peritoneal abscess has frequently a similar origin to that given in the case of the more widely spread suppuration; thus we constantly see it occurring as a result of appendicular inflammation. Subphrenic abscess and some of the local tubercular abscesses are instances of other forms. Why in some cases the suppuration is diffuse and in others strictly localised is at times difficult to explain. Usually it is a question of time, of the acuteness of the process; it takes time to form a firm barrier of adhesions around the irritating material. Sometimes apparently the feeble condition of the patient, sometimes what might be called the "indolence" of the peritoneum, its lack of reaction to irritation, is the reason of a failure to localise the mischief. In considering the subject of abdominal abscess it must of course be remembered that any form of localised suppuration may by extension affect other parts or become diffuse. Some of these abscesses disappear without operation and without discharging externally; probably most of those that recover without

operation burst into some adjacent part of the bowel or other viscus, and are thus emptied. In other instances they no doubt dry up. My own opinion is that they should be opened and drained as soon as they are recognised. So far as I have seen the great majority do well, and it is certainly more reasonable to treat them in that way than to wait for the chance of any other mode of cure. I recognise of course that many of the cases of so-called typhlitis get well by resolution, but more die for want of an incision than fall by the surgeon's knife. I have said that I believe many of these abscesses are glandular in origin. I do so because we know how readily lymphatic glands become inflamed and suppurate, especially in the young, in whom these abscesses are common, and because it is often possible to find some sources of irritation in connection with the intestines or other parts, comparable to those which we see causing glandular abscesses in other more accessible regions of the body. I was not fully alive to the probability of this explanation of my earlier cases, and so no doubt in many of them overlooked the primary source of irritation. (Mr. George A. Wright, Lancet, Feb. 7, 1891, p. 300.)

ACUTE INTESTINAL OBSTRUCTION.—Operative Treatment of. In the discussion on this subject at the meeting of the British Medical Association, Birmingham, 1890, Mr. Mayo Robson related cases which went to prove that pathological classifications were as a rule useless as a guide to operative interference, and said that his experience led him to divide cases clinically into those suitable or unsuitable for operation. He always entered on the treatment of a case of acute intestinal obstruction with an open mind. If the patient was in a good condition he tried to find the obstruction, and treated it according to circumstances when found, but if, after a good search—not too prolonged—he failed to find the obstruction, he either short-circuited the bowel by Dr. Senn's method or performed enterostomy. If the patient was in a poor condition, owing to delay in advising operation, he spent very little time in searching for the cause of obstruction, but opened the bowel at once, and so gave relief by emptying the intestine, trusting to a second operation for the final cure. If the patient was in a very serious condition and could not bear an anæsthetic he injected cocaine, made a small incision, brought up the nearest loop of bowel, and thrust in a large trocar and cannula, to which was attached a long elastic tube, which conveyed the fluid fæces and flatus quite away from the wound. On withdrawing the trocar from the cannula, the opening in the elastic tube at once closed and left the channel apparently intact. The bowel could then be fixed to the parietal peritoneum and an antiseptic dressing applied over the wound, the tube coming through, the whole operation occupying no longer than ten minutes. Mr. Robson thought it was seldom advisable to turn

the whole of the intestines out of the wound in order to search for the obstruction, and from what he had seen in his own practice and in that of others he felt sure that it added very considerably to the danger of the operation. If, after opening the abdomen, the seat of obstruction was found to be in the large intestine, he advocated anterior colotomy, and would not, as had been recommended, stitch up the abdominal wound and go on to the performance of lumbar colotomy. On no account would he adopt the method of puncturing the intestines through the abdominal wall, feeling that the operation was attended with more risk than the small incision and puncture through the exposed intestine, as the latter method allowed of drainage without fear of extravasation. Referring to statistics, Mr. Robson thought that the present lists were not to be relied on, so many unsuccessful cases remaining unreported, but he thought that if all cases of acute intestinal obstruction were reported, the non-operative cases would be found to be equally, if not more, fatal. He felt sure that if once it became recognised that cases of acute intestinal obstruction should be seen at once by a surgeon, and should be looked on in the same light as a strangulated hernia, that the statistics of operation would ultimately approach those of kelotomy for strangulated hernia. (British Medical Journal, Oct. 11, p. 837.)

[See also Dr. Greig Smith's article on the "Surgical Treatment of Acute Intestinal Obstruction," at page 306 of this volume of the *Retrospect.*]

APPENDICITIS.—Points in Operating.

While the recognition and removal of the appendix may in some cases be as simple and easy as any piece of abdominal surgery, it is much more likely to present serious difficulties and to call for the exercise of the soundest judgment and the most careful handling. In the search for the appendix I have found it advantageous to follow the anterior longitudinal bundle of muscular fibres of the cæcum downward and inward; it ends at the root of the appendix. For the ligature of the appendix I have always used a catgut ligature, and have simply tied it about it as in tying an artery. No ill result has followed in any case, and I have seen no reason to abandon this simple method and resort to the more difficult one of turning in the cut end and suturing the opposed peritoneal surfaces. In some of my cases the latter method would have been quite impracticable, even if any confidence could have been felt that such suturing of the inflamed, softened, and sometimes suppurating peritoneum would have held. Free packing with iodoform gauze has seemed to be of great service in arresting suppuration and preventing the spread of infection. I should be very loth to dress a suppurative case without it. I have used it not only in the immediate field of operation, but also and quite freely over and

among the adjoining loops of intestine, removing it thence usually after forty-eight hours. The external incision I have always closed in great part, bringing the drainage-tube and packing out near the lower angle; when the packing has been used more freely, among the adjoining loops of intestine, I have brought it out in two bundles, closing the incision between them. This partial closure of the wound has not interfered with drainage, and I have thought it made cicatrization more prompt and perhaps diminished the chance of hernia. Finally, I may be permitted briefly to summarize the views held by those who have accepted the principles advanced by Dr. McBurney a year ago, so far as I may speak for them. Inflammation in the cæcal region is, in the immense majority of cases, an inflammation in and about the appendix. A certain proportion of cases will resolve spontaneously within two or three days. The others, and they are much the larger number, seriously endanger life in their evolution and are liable at any moment to assume a condition that is practically fatal. We have no means of distinguishing those cases which will go on to the formation of an abscess without accident from those in which this evolution will be gravely interrupted. Early laparotomy—that is, laparotomy within the first three days—enables us to arrest the process by removal of the cause, and is less dangerous than expectant treatment. It is maintained that such laparotomy should be done, not in every case, but only in those which clearly do not belong to the first mentioned, the resolving class. (Dr. L. A. Stimson, N. Y. Medical Journal, Oct. 25, p. 456.)

[See Dr. Stimson's Article on "Appendicitis," at page 325 of this volume of the *Retrospect*. Also Mr. Teale's case of "Removal of Diseased Vermiform Appendix," at page 324.]

CANCER OF THE STOMACH.—The Diagnostic Value of Free Hydrochloric Acid in.

To-day the question seems to be decided, and the diagnostic value of the absence of free hydrochloric acid in cancer of the stomach is absolutely secondary, and this is the reason: First, we have learned, as Ewald, confirmed by Hayem, has shown, that in the physiological and normal state man has no free hydrochloric acid in the stomach; then, that a great number of affections of the stomach may be accompanied by absence of this acid. So, when in a patient supposed to be affected with cancer of the stomach you find hydrochloric excess, and this, after repeated examinations, the conclusion is forced upon you either that the patient has round ulcer of the stomach,—a disease characterised by such excess—and it is the only disease where "hyperchlorhydria" is constant and well pronounced,—or that you have cancer of the stomach complicating round ulcer. (Dr. Dujardin Beaumetz, Therapeutic Gazette, Nov. 15, p. 724.)

CANCER OF STOMACH.—Free Hydrochloric Acid in.

On a review of the entire subject, while it must be admitted that rare cases of cancer occur in which free HCl. is present, and that still more frequently HCl. is absent in cases which are not cancer, so that this sign is no more than others absolutely pathognomonic, yet it is one of great importance, and in all suspicious cases frequent chemical examination of the contents of the stomach should never be omitted. (Dr. J. M. Purser, Dublin Med. Journal, Dec., p. 472.)

[Leube's method of examining the gastric juice for the presence of hydrochloric acid will be found in *Retrospect*, vol. xcvi., p. 50. See also Dr. Nechaieff's article at page 49 of same volume.]

CHOLECYSTOTOMY.

At the Leeds and West Riding Medico-Chirurgical Society, on Oct. 10th, 1890, Mr. Mayo Robson read a paper on cholecystotomy for gall stones where the operation had been performed on the strength of symptoms alone, without physical signs, and related two cases. In the first, a man, aged 29, had had severe attacks of "spasms" for twelve months, the pain starting in the right hypochondrium; but on no occasion had he been jaundiced, or had there been any physical signs of tumour. At the operation, six gall stones were removed from the gall bladder and cystic duct, and as the gall bladder was too far from the surface to fix to the external wound, the omentum was brought up and sutured to the margins of the gall bladder and parietal peritoneum, thus shutting out the general peritoneal cavity. The wound healed within a month, and when the patient was seen three months afterwards he was apparently well, and had had no return of the symptoms. The second case was that of a gentleman, aged 50, who had had similar but more severe attacks for nine months. Only one unfacetted gall stone about the size of a filbert was found in the gall bladder. The wound healed within a fortnight, and the patient, when heard of six months afterwards, was in perfect health, and had had no repetition of the attacks. Mr. Robson said that, bearing in mind the dangers of cholelithiasis, and knowing with what little danger cholecystotomy could be performed, he had no hesitation in recommending the operation whenever there were repeated attacks of biliary colic apparently due to gall stones, which did not yield to a definite course, not very prolonged, of medical treatment. (p. 317.)

CHRONIC CONSTIPATION.—Pill for.

In the treatment of chronic constipation Nothnagel (*Therapeutische Monatshefte*) advises the use of the following when a laxative is necessary: ℞. Podophylin, 4½ grains; extract of aloe, 45 grains; extract of rhubarb, 45 grains; extract of taraxacum, a sufficient quantity. Mix and divide into 40 pills, of which one, two, or three may be taken at bedtime. (Jour. Amer. Med. Assn., Oct. 18, p. 386.)

CHYLOUS ASCITES AND CHYLOUS HYDROTHORAX.

At the Pathological Society, on Oct. 21, 1890, Dr. Sidney Martin gave the details of a case of Chylous Ascites and Chylous Hydrothorax. The patient, a cook aged thirty-nine, was admitted into the Middlesex Hospital, under Dr. Cayley, suffering from enlargement of the abdomen, due to ascites. He gave a history of five months' illness, coming on after exposure to cold, and commencing with cough, expectoration, and dyspnœa. Vomiting ensued, with loss of appetite, and the abdomen was noticed as getting larger. On admission there were signs of ascites. There was deficient movement of the right side of the chest, with râles and rhonchi. The movements and breath sounds of the left side were exaggerated. During the patient's stay in the hospital the ascites increased, swelling of the feet supervened, and clear fluid was drawn off by puncture. The left arm became œdematous. There was dyspnœa and a slight attack of diarrhœa. The first tapping (six days before death) withdrew forty-eight ounces of chylous fluid, the second tapping sixteen ounces. The patient died in dyspnœa. At the post-mortem, the abdomen contained 180 ounces of yellowish, milky (chylous) fluid, containing over 1 per cent. of fat in the form of an emulsion and flocculi of fibrin, white from the admixture of fat. There was no peritonitis. The lymphatics over the surface of the small gut (also to a less extent of the large gut) in the mesentery, beneath the pleura and in the lungs were distended with an opaque, milky fluid. There were ten ounces of chylous fluid in the left pleura; the right was adherent. The opening of the thoracic duct into the veins was obstructed by a closure of the subclavian and jugular veins about two inches from their ending, the veins for that distance being impervious, fibrous cords. The origin of the left innominate vein was reduced to a chink and closed by a piece of tough fibrin. The thoracic duct and receptaculum chyli could not be found. The heart, liver, spleen, and kidneys were normal. The case was compared with the other cases of chylous ascites which had been recorded. (Lancet, Oct. 25, p. 875.)

COMPLETE PROLAPSE OF RECTUM.—Treatment of.

The indication for treatment is to find some plan binding the muscular and mucous coats together, so as to prevent this initial slipping, while at the same time, if a certain amount of thickening can be produced so as to give a little extra stiffness to all the coats of the bowel, invagination becomes mechanically more difficult. The necessary conditions can be fulfilled by exciting inflammation in the submucous tissue. The exudation thus produced cements the two coats more firmly together, preventing sliding, while at the same time it affords an increased stiffness to the whole bowel. The actual cautery, as advised by Van Buren, is an admirable means of exciting the necessary inflammation. The method of operating is

as follows: The bowels having been thoroughly cleared out, the patient, being under an anæsthetic, is placed in the lithotomy position. With a little manipulation the prolapse can be generally made to protrude. Four lines of cautery are now drawn along the bowel in its long axis, one in front, one behind, and one on either side. It should be managed so that these lines commence well within the canal of the bowel at the apex of the protrusion, and terminate at the anal margin. The width of the lines should be about a quarter of an inch, and their depth such as thoroughly to sear but not actually to destroy the mucous membrane. The lines of the cautery are pretty sure to cross one or more large dilated veins. These should be tied on either side of the lines, a needle threaded with silk being passed beneath them. The whole operation should be done pretty quickly, and the bowel returned, otherwise congestion and swelling will make its reduction difficult. If the prolapse does not protrude at the time of the operation, the lines of cautery can be drawn along the bowel *in situ* by using a full-sized duckbill speculum, shifted as required for each line. Paquelin's cautery is not suitable for the purpose, for it is too hot when first applied and cools too rapidly. A thick indiarubber tube, with a third of an inch calibre, seven inches in length, is passed up the bowel for about five inches. Strips of oiled lint are then arranged round the interior of the bowel extending as high as possible. Cotton-wool thoroughly well dusted with iodoform is then evenly and carefully packed into the bowel between the tube in the centre and the oiled lint on the sides. This gives a firm, even support to the lower few inches of the bowel, while the escape of flatus, &c., is provided for by the tube. The support thus afforded at an early stage is, I consider, very material. The success of the operation depends on the care that is taken to prevent the descent of the bowel during the early stages of healing before the adhesions have become firm. After forty-eight hours the whole dressing is gently removed, the part thoroughly washed, and a clean dressing replaced. The desire to strain has generally passed off by this time, and it does not seem necessary to pass the dressing far up the bowel. After the first few days internal dressings can be dispensed with, but the tube, cleaned daily, is kept in for ten days or more. It allows the easy passage of flatus without straining effort. By a small nightly dose of opium the bowels can be kept confined for ten days. Small doses of castor oil can then be given together with an enema if necessary. The patient must on no account sit up or strain, and the motion is to be passed lying on the side and the anus drawn a little from the middle line; and this should be enforced for at least six weeks, whilst consolidation is taking place, otherwise the whole advantages of the operation may be lost. I think it is from want of attention to these details that failure may often be attributed. (Mr. Harrison Cripps, p. 312.)

GASTRIC ULCERS.—Characters of the Pain in.

Pain is certainly the most constant though not the most characteristic symptom. It is usually fixed and well circumscribed, situated most commonly at the pit of the stomach, at other times either to the right or to the left of the epigastrium, or midway between the ensiform cartilage and the umbilicus; in some cases the pain is more diffuse, but starts always from the same fixed point and extends either to the left or right. The associated pain in the back, due most likely to the irritation of the spinal sensory nerves, embryologically associated with the somatic sympathetic nerves, as pointed out by Dr. Ross, is often present and extends from the fourth to the eighth dorsal vertebra and the adjacent parts. The pain is, as a rule, severe, of a burning or stabbing character, often lasting for several hours, especially when the ulcer is situated near or at the pylorus. On deep palpation the pain can almost always be elicited, an important distinction from the pain experienced in flatulent and nervous dyspepsia and other neuroses of the stomach. The pain is, as a rule, relieved by food and reappears at a variable period after food. The relief of pain by food is, probably, due to the fact that the hyperacid condition of the gastric juice is to some extent neutralized by the alkaline saliva which reaches the stomach mixed with the food, and the secretion of which is increased during mastication; possibly also the soft bolus of food acts like a poultice on the raw ulcerated surface, and thus diminishes the pain. The variability of the time of the appearance of the pain after food depends most probably on the situation of the ulcer; in ulcers near the pylorus the pain appears an hour or two after food, often also many hours after food has been taken. Thus in a number of cases of undoubted ulcer the patients complained of pain at night between the hours of 11 p.m. and 1 a.m., occurring with great regularity; ulcers near the cardiac end give rise to little or no pain. This may be explained by Openchowski's (*Deutsche med. Wochensch.*, 1889, p. 717) observations on the movements of the stomach, according to which the movements extend from a point situated at the junction of the upper and middle third of the stomach, which is a fixed point, to the pylorus, where they are most plainly discerned, while the cardiac end and adjacent parts show no movements. As in some cases of gastric ulcer, pain may be almost the only symptom, and be unassociated with vomiting of food or hæmatemesis. A careful enquiry as to the character of the pain, its exact situation and limitation, and the other features described above, is of great importance. (Dr. Dreschfeld, Medical Chronicle, Feb. 1891, p. 347.)

GASTRO-ENTERITIS (ACUTE) OF CHILDREN.—Creolin.

In five cases of acute gastro-enteritis creolin was given according to the following formula, causing the symptoms to disappear in from three to six days: ℞. Creolin, 3 drops; canella water, 2½

ounces; syrup of mallows, 6 drachms. Dose for very young children, a small teaspoonful every hour. For older children the creolin may be given in powders, thus: ℞. Creolin, 15 minims; sugar, 75 grains. M. Divide into ten powders and give one or two daily. (Schwinz, Archives of Pediatrics, Dec. 1890.)

HYDATID CYSTS.—Treatment by Incision and Removal.

At the second Congress (Intercolonial) of Australasia I read a paper advocating my view that abdominal sections and thoracic sections were indicated in nearly all cases of hydatid disease of the liver and lung. Detailed accounts were given of 32 cases operated on by myself with two deaths, one being hydatid of the omentum. There were nine lung cases with no deaths, and 20 liver cases with one death. Since that date I have collected from the hospital records and from my own practice 27 cases of hydatid of the liver similarly treated, with four deaths, and 10 lung cases with two deaths, making in all a total of 19 lung cases with two deaths, and 47 liver cases with five deaths, i.e. 10·6 per cent. of deaths in the liver cases, and 10·5 per cent. of deaths in the lung cases. Evidence is forthcoming from every part of Australasia that section for hydatids is increasing in frequency, and that the results are daily becoming more favourable. I have no hesitation in resecting ribs, opening the pleural cavity, incising the diaphragm, stitching the cyst to the diaphragm, and the diaphragm to the costal pleura and skin in all cases in which I find cysts situated on the convex surface of the liver. At the same operation I deem it to be absolutely essential to success that a drainage tube should be inserted into the lowest part of the pleural cavity to provide for the drainage of any subsequent empyema. At this point there are two positions to be considered differing essentially in their risks, and also with regard to the readiness with which one would undertake to attack any hydatid cyst on the convex surface of the liver. 1st. Cases of hydatid cyst, and they are frequent, which have ruptured into the pleural cavity or lung, leading in the former case to the formation of a secondary empyema. These may be cut into without hesitation because the pus has to be evacuated, the lung is already collapsed and the patient has become accustomed to depend for respiratory purposes on the sound lung. 2nd. Cases in which the lung and pleura on the affected side are quite unaffected. Here one has to face a pneumothorax produced *ab extra* with sudden collapse of the lung, and the throwing of all the work on the opposite lung suddenly instead of gradually. Even here I would not hesitate to operate, fully conscious, however, of the greater risk which has to be run. My notes show that 10 cases included under the last two headings were done with two deaths, and one of these was done before the time, when it was felt incumbent upon the operator to remove the contents at the time of the operation, and the other

patient was almost in extremis when the operation was performed. These statistics prove that the statement of Dr. Shewen that "probably more than half die" is absolutely erroneous, and teach us that although we all recognise the increased risk, yet with care we may expect fairly favourable results. (Dr. Wm. Gardner, Senior Surgeon Adelaide Hospital, Australasian Med. Gazette, Dec. 1890, p. 85.)

INTRACTABLE VOMITING.—Opium and Cocaine in.

At the French Association for the Advancement of Science Congress of 1890, in the Medical Section, M. Tyson, of Paris (*National Druggist*), read a paper on the association of opium and cocaine in the treatment of rebellious vomitings of pulmonary tuberculosis, divers gastritis, &c. In a large number of cases the author claims that the best results followed the exhibition of pills, each containing one centigram of hydrochlorate of cocaine and an equal quantity of extract of opium. Of these from 5 to 6 were given daily, preferably ten minutes prior to the introduction of food or drink into the stomach. The same treatment has been found excellent in allaying the pain, nausea, and vomiting of alcoholic gastritis, cancer of the stomach, &c. As the pills are very deliquescent, it will be necessary to add the usual corrigens in such cases. (Journal Amer. Med. Association, Oct. 18, p. 578.)

LITTRE'S HERNIA.

Schaeffer (*Deut. med. Woch.*, No. 27, 1890) reports two cases of Littré's hernia, both of which were operated upon, and terminated favourably. In commenting upon these cases, Schaeffer notes that in neither was there intestinal obstruction. Indeed, the diagnosis was made from the fact that, together with the symptoms of strangulated hernia, there were repeated spontaneous passages of gas and fæces. According to Laurents, who has observed twelve cases of this form of hernia, obstruction develops nearly always in Littré's hernia; the evacuation, if observed, depending rather upon dislodgment of fæcal masses lying in the bowel beyond the seat of constriction than upon preservation of the continuity of the intestinal canal. The cases reported, however, passed flatus and solid matter repeatedly and spontaneously, and operation was indicated only by concomitant symptoms. This is an important observation, since a dependence upon Laurent's method might lead to unwise postponement of operative interference. (American Journal, Nov. 1890, p. 520.)

LIVER.—Removal of a Portion by Elastic Ligature.

Terrillon reports a case in which a portion of the liver was removed by means of an elastic ligature. The patient was a woman fifty-

three years old, who for some years had suffered from a painful swelling situated in the right lobe of the liver. An exploratory puncture revealed the presence of a small quantity of fluid resembling that of a hydatid cyst. Although after the puncture the swelling diminished, Terrillon opened the abdomen on the right side by an incision parallel to the false ribs, exposed the tumour, and placed an elastic ligature around it. At the end of seven days the sphacelated portion with the ligature was removed. The wound, of which the base was formed of hepatic tissue, was separated from the peritoneal cavity by firm adhesions. Cicatrization was complete at the end of the sixth week. (Medical Press, September 10, 1890.)

MALARIAL CIRRHOSIS OF THE LIVER.

Dr. Saundby, in his valuable paper published in the British Medical Journal of Dec. 27th, 1890, on cirrhosis of the liver, describes the malarial variety. There is, he says, an absence of ascites. As regards the absence of ascites and the unusual presence of jaundice, my experience is somewhat different. One case will suffice. About three years ago I saw a gentleman who had been fifteen years in India, and who, during the greater part of that period, suffered from intermittent fever, and for five years from enlargement of the liver. He was a man of temperate habits, particularly for the last ten years, but reckless in other respects—often exposing himself up to the knees in water under a powerful sun, in the pursuit of game. Eventually, as a result of a bad chill, ascites appeared. When I saw him on his return to London he was very thin, his liver was enlarged, there was much ascites, and his skin was a greyish yellow; he still had attacks of fever. As the result of frequent tappings he improved so much that his recovery seemed not improbable, but owing to prolonged exposure to cold the fever, the congestion, the ascites, and the œdema of the extremities all reappeared, and he died soon after, about ten months from the time I first saw him. There could be no doubt but that this was a case of post-febrile tropical cirrhosis, for he was a perfect type of the so-called malarial saturation. Of the other cases I could not be sure that fever was the sole cause, for alcohol may have lent a helping hand. The congestion which precedes the enlargement is not generally acute, and is often not noticed, and, as I pointed out years ago when in Burmah, fevers are frequently followed by enlargement of the liver in the European, and but rarely in the native, the spleen in the dark races being the organ to suffer. This is, I think, due to a certain predisposition to hepatitis among Europeans, owing to the effect of heat, alcohol or unsuitable food, which the acclimatised, vegetable-eating, and more temperate native escapes. Those who suffer from ascites due to malarial cirrhosis should at once return to Europe, where, under the

influence of a temperate climate and the avoidance of chill, they may hope to lose their fevers, and, with tappings, also their ascites, if not their hepatic enlargement. They would also do well to winter in the Riviera, where they can get out in the day, and where, though it is cold about sunset, the temperature of the house is one of great equability. (Dr. D. H. Cullimore, British Medical Journal, Jan. 24, 1891, p. 173.)

ŒSOPHAGUS.—Congenital Malformation of.

A few days ago I attended Mrs. B. in her first confinement. She had gone her full time, and the child (female) was apparently strong and healthy. On my visit the following morning I was informed that everything the child took, either from the breast or spoon, was at once regurgitated through the nose. I accordingly saw it again in the afternoon, and attempted to pass a soft catheter into the stomach. It passed in five or six inches, but, on injecting milk through it, regurgitation ensued immediately, the catheter having apparently become coiled up in a *cul-de-sac*. The child died about forty-eight hours after birth. With very great difficulty I obtained permission to make a post-mortem examination, in conjunction with my assistant, Dr. Squire, when we found the following condition of the parts: The pharynx was normal. The œsophagus ended in a pouch-like dilatation an inch and a half below the laryngeal orifice. From the extremity of the pouch a fibrous, cord-like prolongation could be traced for about two inches. We opened the stomach, and passed a probe through the cardiac orifice. We found that the gastric extremity of the œsophagus was represented by a muscular tube of about the normal calibre below, but becoming smaller and thinner as it passed upwards behind the œsophageal pouch above mentioned, and finally opening into the trachea in the fibrous space between the cricoid cartilage and the first tracheal ring. (Mr. J. Foster Vince, M.B., Birmingham, British Medical Journal, Jan. 3, 1891, p. 14.)

ŒSOPHAGUS.—Reflex Spasm of.

Joal, of Mont-Dore, reports (*Rev. de Lar. d'Otologie et de Rhin.* August 15, 1890) a case of œsophageal spasm, due to hypertrophy of the so-called fourth tonsil, a mass of lymphoid hypertrophy in the base of the tongue. Last year he reported nine cases due to nasal and genital disorders.

[We have seen œsophagismus result from various pharyngeal diseases, especially chronic folliculous tonsillitis with accumulations of masses in the crypts; and likewise from aural irritation, due to accumulations of cerumen in the external auditory meatus. It is important that these facts be borne in mind in cases of recurrent œsophagismus and even in some cases of continuous stricture.—Ed.] (American Journal, Dec. 1890, p. 640.)

PYLORUS.—Resection of.

This operation, introduced by Billroth, has been performed a sufficient number of times by competent surgeons for us to nearly make up our minds as to its actual value ; and, I think, anyone who goes over the cases that are presented in the various journals, or, what is much better and fairer to the operation, should examine the statistics of those who are recognised—by previous large experience in general surgery, or in this particular operation—to be masters of the technique, it will be found that the mortality is yet so fearful and the prolongation of life so little, in the few that are saved, that it, as an operation, might be relegated soon to those which may be considered merely as experimental. I have long felt that it was an operation which had not much probability of a future. I do not yet see anything to change this view. In collecting, for instance, the cases presented by Billroth himself, 28 in number; by Anger, 6 cases ; by Lauenstein, 12 cases; by Lücke, 24 cases, and by Czerny, 10 cases—one gets a sufficient number of well-managed operations to judge of the result. Footing up the total, we have 80 cases in all, and 41 deaths. Of those that survived, according to Billroth's report, 13 in number, 6 died within six months of the operation ; 2 between the first and second year; 2 between the second and third year, and only 1 lived beyond three years. This last case may be considered to be a cure—the only one, save one other, recorded so far. Czerny reports that his three recoveries lived between five months and two years ; and so on with the other surgeons quoted. Now, the cases operated upon for cancer by gastro-enterostomy, in conditions which are admittedly more severe than those treated by a pyloric resection (for they were mostly cases that were not considered fitted for pylorectomy), lived according to Billroth, in 14 cases from one year to fourteen months; and according to Navaro, in 16 cases the duration of life extended from three to nineteen months. Now add to a continuance of life of nearly the same amount by gastro-enterostomy the fact of an increased saving of life by this operation, and the argument against a pylorectomy becomes very strong. In the 96 cases of gastro-enterostomy that I have collected from the same observers there were only 39 deaths, and all these were done by the old method of operation, that is to say, a mortality of forty per cent. This percentage is carried down, as just stated, by the safer and quicker method of the approximation plates or rings, to twelve per cent., viz., 3 deaths in 24 cases. In other words, a twelve per cent. mortality by gastro-enterostomy, in the hands of surgeons of limited experience in the use of the improved method, can be placed against fifty-one per cent. of mortality from pylorectomy for cancer, by surgeons fully masters of the operation. Could, as it should be, a gastro-enterostomy be employed earlier in the disease, the death-rate would naturally be less than this even. (Dr. R. F. Weiss, N.Y. Med. Record, Jan. 10, 1891, p. 38.)

AFFECTIONS OF URINARY AND GENERATIVE SYSTEMS.

CHRONIC CYSTITIS.—Iodoform in.

An application of iodoform of very great value is as an emulsion in the painful and frequent micturition of fœtid urine in chronic cystitis. Injected into the bladder, it soothes the irritability and corrects the fœtor attending decomposition better than many other applications. In a case of very great severity, the following formula was found to answer admirably, viz.:—Iodoform, ʒ ij; glycerine, ʒ ij; mucilage of acacia, ʒ iv; water to ℥iv. About 3 fluid drachms of this were injected at a time. (Dr. Wm. Carter, Liverpool Medico-Chir. Journal, Jan., p. 165.)

ENURESIS.—Treatment by Electricity.

The reason why this class of case can be so successfully treated by galvanism is in my opinion due to the fact that the whole of the lower nervous supply of the bladder and sphincter vesicæ can be so easily included in the circuit. My method of treatment is not exactly the same as that followed by Guyon and Unverricht, described in the annotation alluded to above. It is seldom that I have to pass an electrode into the urethra; and it seems to me that failure will often ensue if the second electrode is "moved from place to place over the pubes." The tendency of all electrical currents is to take the shortest route possible to complete the circuit, always of course choosing the road offering the least resistance. If one electrode is placed on the lower dorsal spine and the other above the pubes, the sphincter vesicæ is almost completely without the circuit, and then receives very little direct influence. In cases where there is weakness of the sphincter, unless an electrode is placed in the urethra itself, the most advantageous position for the second electrode is the perineum. It is seldom that I use the interrupted current, although it is strongly recommended by Erb. My usual plan is to place a pad connected with the negative pole of a continuous current battery over the lower dorsal region of the spinal column, and a small button electrode on the perineum. I advise that the electrode connected with the negative pole should be the fixed one, because of the sensitiveness of the parts to which the second electrode has to be applied, and the small space, and therefore the difficulty experienced in moving the electrode about. In all cases a very weak current is used, and therefore the fixed negative electrode, being of wide surface, does not painfully affect the back; whereas, if the current were reversed and the button electrode in the perineum made negative, a weaker current still would have to be used to enable the patient to bear it. Therefore, in these cases we get the greater advantage by placing the electrodes as I have mentioned. In the treatment of atony of the bladder, incontinence of urine, or undue frequency of micturition, I usually employ the current for eight or ten minutes every day or every other day;

the great majority of cases only requiring about eight or ten applications. In some cases when galvanism fails the interrupted current may be employed with success. It is then best to place an electrode in the urethra. (Dr. Steavenson, in charge of Electrical department, St. Bartholomew's Hospital, Lancet, Jan. 10, 1891, p. 83.)

ENURESIS.—Atropine in.

Dr. R. Bruce James reports in the *Archives for Pediatrics*, September, 1890, the results of a systematic trial in an orphan asylum of atropine as a remedy for enuresis in children. He found that in order to obtain a successful result it was necessary to give a full physiological dose. He commenced by giving $\frac{1}{100}$ of a grain of atropine sulphate, but no case was benefited by less than $\frac{1}{25}$ of a grain, and in one case $\frac{1}{10}$ of a grain had to be given. The required quantity was given in two doses at 6 and 9 p.m. The drug controlled the enuresis as long as it was taken, but even when the dose was continued nightly for a month, its withdrawal was, in a large proportion of the cases, immediately followed by recurrence of the condition for which it was given; in some cases, however, the enuresis did not recur for periods varying from a week to six weeks; one case only, a healthy boy but slightly affected, was completely cured. It was found useless to diminish the dose gradually in the hope of keeping up the action; anything short of the full physiological dose seemed to produce no effect whatever. In one case full doses produced only temporary relief; in one only were symptoms of poisoning observed, and these not sufficiently severe to warrant a suspension of the remedy. Fifteen cases are reported, all otherwise in good health, but Dr. James states that he has used the treatment in many other cases, and that the enuresis was controlled in every case under 12 years of age; children above this age were not "benefited in the least." Dr. James thinks that in children too big to wear diapers "we can with confidence offer a substitute in the shape of a full dose of atropine, to be repeated every night till the child has outgrown his infirmity, and this point can be tested by having the drug withheld from time to time." (Suppl. British Medical Journal, Oct. 11, p. 12.)

ENURESIS.—Simple Treatment of Nocturnal Incontinence.

The following simple theory to explain one of the causes of nocturnal incontinence and its equally simple treatment will interest many who have to treat this often trying and inconvenient habit. Dr. van Tienhoven, of The Hague (*Correspondenzblatt für Schweizer Aerzte*, No. 18, 1890), suggests that in these patients, though the bladder acts normally through the day, it misbehaves at night. The question is, Shall the musc. detrusor urinæ or musc. sphincter vesicæ, or both, be blamed? Dr. van Tienhoven believes that the musc. sphincter is not strong enough to keep back the urine which collects in the bladder in the early hours of the night and permits it to find its

way into the prostatic portion of the urethra. The musc. detrusor is thus reflexly stimulated and the bladder is emptied. In order to prevent the urine from running into the urethra in this way the children were made to sleep with the pelvis elevated. In this position the bladder is capable of holding a certain amount of urine before the liquid reaches the level of the urethral opening. The foot of the bed must be elevated so that the bed forms an angle of forty-five degrees with the horizontal. The children should be sent to bed with empty bladders, and should not take any liquid just before retiring. They sleep well in this position and do not complain. Fourteen cases were treated by this simple method only, and were cured in a short time. (American Journal, Dec. 1890, p. 617.)

HYDRONEPHROSIS.—Cured by Natural Effort.

At the Clinical Society, Nov. 28, 1890, Dr. Goodhart narrated cases of Hydronephrosis cured by Natural Effort. The first case was a young man who had fallen into a hole and struck his right side. He passed blood the same night, and was sick, and on and off for five weeks he had pain and more or less discomfort in the right loin, and then for the first time a swelling was noticed in that region. He was admitted with a large swelling in the right hypochondrium, which pressed up the diaphragm, and distended him much in that region. His urine was natural, except that the quantity was persistently small, the range being from fourteen ounces to twenty-six. Thinking that there was a ruptured kidney, and the swelling was in connection therewith, Mr. Lane was asked to aspirate it, and this he did, with the result that sixty-four ounces of high-coloured urinous fluid, containing altered blood pigment, sp. gr. 1012, albuminous to the extent of two grammes per litre, and a slight trace of urea, were removed. He was much relieved, but the cyst speedily refilled, and twelve days afterwards he was aspirated again, six pints of similar fluid being removed. He was now allowed to go for a month, when nearly another six pints were removed. During this time he had been subjected to as much counter-pressure as he could bear, with the idea of hindering the effusion of fluid, but with apparently little success. It now became a question what was to be done. There seemed no limit at this rate to the number of aspirations that might be necessary, and, after all, be no nearer to a cure; and, on the other hand, from the readiness with which the cyst was refilled, if it were laid open and drained, a permanent fistula would be likely to result, and in the end would necessitate the removal of the kidney. The patient was therefore advised to leave it alone, and the result has been that the cyst slowly diminished in size, and ultimately completely disappeared. He was now quite well, and he thought he was passing a natural quantity of urine. The other case was that of a boy of eight, who fell on his side, passed blood in his urine, and in whom a large cyst gradually formed in the right side of the

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abdomen. He was under the observation of Mr. Watson of Rochester, who told the author that when first seen the child had an enormous cyst, and his abdomen was in consequence so large that his waistcoat could not be buttoned. Nothing was done in this case, and after a time it began to diminish, and when he saw the boy three months later, although he still had a large cyst in the right loin which extended across the median line, it was evidently flaccid, and the fluid therefore undergoing absorption. He heard from Mr. Watson, nine months later, that the boy was perfectly well. The cases were brought forward to raise the question of the proper treatment of hydronephrosis, a question that was still an open one, but one which the author thought was being resolved more and more by surgical measures. Hydronephrosis in former times was treated by tapping, and the cases ultimately disappeared from view. That they did not die might be concluded from the evidence of the post-mortem room; therefore it was to be supposed that many of them recovered by natural effort, and from various physiological considerations it would seem that repeated tappings or interferences of any kind was bad practice, unless pain or disturbance of the general health necessitated it. (Lancet, Dec. 6, 1890, p. 1219.)

NEPHRO-LITHOTOMY FOR TOTAL SUPPRESSION OF URINE. At the Royal Medical and Chirurgical Society, on Jan. 13th, 1891, Mr. Clement Lucas read a paper on a case of Nephro-lithotomy (following nephrectomy) for Total Suppression of Urine lasting five days, with complete recovery and good health five years after the operation. This case was mentioned by the editors of the medical journals at the date of the operation, in 1885, as a case of exceptional interest, but the details of the case have never before been published, nor has the patient, or her kidney, or the stone which caused suppression, ever been exhibited before. The author had delayed publishing it because those to whom he mentioned it, whilst applauding the attempt to save a life on the extreme verge of dissolution, threw the coldest doubt upon the patient's future, maintaining that even if she recovered from the immediate effects her life must be a short and painful one; that the one remaining kidney, having been opened and drained, would rapidly degenerate, or another stone would quickly form and bring about a final catastrophe. After the lapse of five years the author thought he might be acquitted of any attempt to claim an incomplete success. The patient was still living and enjoying the best of health, and a freedom from pain, discomfort, and hæmaturia, which, for seventeen years before her right kidney was removed, were almost constantly present. The operation for total suppression of urine was one that the author had long considered justifiable, and he had on more than one occasion previously publicly advocated its performance. The patient had been under the care of Mr. F. D.

Atkins of Sutton, Surrey, to whom much credit was due, both for the original diagnosis and for the promptitude with which he acted when total suppression occurred. F. F——, aged thirty-seven, was first admitted into Guy's Hospital on June 22nd, 1885. There was a strong family history of consumption. For seventeen years she had suffered from hæmaturia at intervals, and for nine or ten years this had been accompanied with pain on the right side of the abdomen, and for seven years a tumour diagnosed as a floating kidney had been felt on this side. On July 14th the right kidney was removed by lumbar incision. It was a mere shell containing masses of stone, and weighing 21 oz. The wound healed completely, and she left the hospital convalescent on Aug. 10th, just within a month of the operation. All went well for three months. She had returned to her household duties, was free from pain and hæmaturia, and much satisfied with the result of the operation. On Sunday morning, Oct. 24th, 1885, she was suddenly seized, between seven and eight o'clock, with most violent and agonising pain in her back and left loin. The pain passed through the loin to the front of the abdomen and groin. About eight o'clock she passed a little urine, but from that time all secretion stopped. Vomiting commenced about half-past eight on the same morning, and was continued at intervals and whenever anything was taken. Mr. Atkins was called to see her and found the bladder empty. Vomiting and anuria continued throughout Sunday, Monday, and Tuesday. On Tuesday Mr. Lucas met Mr. Atkins in consultation, and advised operation. The symptoms continued without cessation on Wednesday, when she was brought to London, but Mr. Lucas's medical colleagues still advised him to postpone operation till a further trial had been given to diuretics, and in deference to their opinion he waited another day. On the afternoon of Thursday, the fifth day of anuria, the patient became drowsy and weaker, so that it was difficult to rouse her to obtain answers to questions. Her pulse was weak, her temperature 99°, and she had become less sensitive to pain, and indifferent to what was passing around. Ether was given, and Mr. Lucas cut down on her remaining kidney and discovered a conical stone acting as a ball-valve to the top of the ureter. The stone was rather more than three-quarters of an inch in length and from three-eighths to five-eighths in diameter. Urine began to drop away out of the wound as soon as the pelvis of the kidney was opened, but the pelvis was not found much dilated. The patient recovered well from the anæsthetic, and was sick once only after the operation. For twelve days all urine was passed by the wound in the loin. Then an ounce and a half was passed with great pain from the bladder, and the quantity gradually increased. After the nineteenth day all the urine was passed naturally. The wound ran an aseptic course, and the patient's temperature scarcely rose above normal. Healing was complete

ten weeks after the operation. During the last five years she has been employed in household duties, and has enjoyed good health. The patient was exhibited, together with her right kidney, which was excised, and the stone removed from the left kidney for total suppression of urine. (Lancet, Jan. 17, 1891, p. 144.)

NEPHRORRHAPHY.

Dr. W. W. Keen (*Annals of Surgery*, vol. xii, No. 2, Aug. 1890, p. 81) gives a very full account of the present position of our knowledge on floating and movable kidney. Whilst the terms are pathologically very distinct, the conditions are usually difficult to distinguish during life. The frequency of their occurrence is certainly underrated by most surgeons. As to the symptoms, they are variously estimated by different surgeons, some believing that such a condition is a standing menace to life, whilst others would never sanction an operation at all on the ground that it is never necessary. Instances are recorded in which serious gastric and other reflex disturbances which accompanied movable kidney were at once relieved by its fixation to the body. The diagnosis is usually easy, but the condition of the urine affords but little guide. The presence of albumen at intervals may, however, prove useful as a confirmatory symptom if such a condition should exist. The treatment resolves itself into external fixation by means of a pad, and an operation having for its object the suturing of the kidney to the body. The sutures should pass through the substance of the kidney, and are but little if at all likely to do any harm. As a last resource, nephrectomy may require to be performed. The dangers of the operation are comparatively slight, but the patient should be kept at rest for three or four weeks afterwards in order to allow of firm agglutination of the parts. Four cases of Dr. Keen's own are recorded, and a table is appended of the results of 134 cases from which many useful hints may be obtained. (Supp. British Medical Journal, Oct. 25, p. 27.)

SUPRA-PUBIC PROSTATECTOMY.—Results of.

An estimate of the value of radical operations must be based upon a comparison with the results of simple drainage of the bladder; since the latter is included in the former and alone secures cessation of existing cystitis, subsidence of the congestive œdema of the prostate, and an improvement—more or less temporary—in the evacuation of the bladder. The radical operation should accomplish more; it should restore voluntary and complete urination in the individual who has long been largely or entirely dependent upon the catheter. For this estimate many of the 133 reported cases are useless; for in some the previous and subsequent history is not recorded; in others the operation was made for acute retention without previous dependence upon the catheter (where simple drainage would have afforded relief); and in a third class the prostatic enlargement was

complicated with a calculus, to whose removal the recovery of the vesical function might be largely ascribed. Excluding these, there remain 41 cases wherein the catheter was indispensable for periods varying from several months to seven years prior to operation. In 32 of these 41 voluntary urination was restored and maintained during the period of observation, varying from a few months to two years; in only a few is it, however, definitely stated that the evacuation of the bladder was complete as well as voluntary; in several residual urine was noted and the daily passage of the catheter was advised as a precautionary measure. In 9 of the 41 cases voluntary micturition was not restored. As elsewhere observed, it seems probable that the failure in some of these was due to incompleteness of operation. The mortality of prostatectomy (13·6 per cent.) seems somewhat greater than that of cystotomy in elderly men for other purposes, particularly the removal of calculi; though due to the same causes—uræmia, shock, and irritation of the respiratory tract by the anæsthetic. In other words, the hazard of the operation is entirely due to the preëxisting disease of the urinary tract as well as to the enfeeblement of vitality from age and protracted suffering; and its excess of mortality over lithotomy must be ascribed to the greater delay in operating. In only one case was serious disturbance caused by the local interference with the prostate: Dittel, after removing a median growth with the écraseur, observed suppuration in and around the prostate; the abscess was opened from the perineum by separation of the rectum, after which the patient recovered. The obvious deduction is that the operation should be performed earlier in the course of the disease, and not as heretofore deferred until the last stage: corroboration of this inference is found in the paradox that operations upon the prostate, complicated with calculus extraction, furnished a much smaller mortality (1 in 26 suprapubic, or 3·8 per cent.) than the uncomplicated prostatectomies (11 in 63, or 17·5 per cent.). A calculus was, therefore, an advantage rather than an injury, since its presence led to early operation. It is also noteworthy that among the cases complicated with calculus the recovery of voluntary urination is much smaller (52 per cent.) than among the uncomplicated operations upon the prostate (81 per cent.). The explanation, though conjectural, seems to be that the removal of the stone was the principal object; the prostatic operation was usually a mere incident, negligently performed. Opportunity is still lacking—because the operation is so recent—to determine decisively whether the restoration of voluntary urination is permanently assured; further experience must show whether new tumours may not frequently develop from the unexcised prostate, causing a recurrence of the original morbid condition. Actual observation on this point is limited as follows: (1) In twenty-four cases unobstructed urination and catheterism have persisted for periods ranging from six to

thirty-two months after removal of prostatic obstacles; (2) in two cases actual inspection of the bladder three months after operation (Kümmell, M. Schmidt) showed no further tumour-formation. (Dr. W. T. Belfield, Chicago, American Journal, Nov. 1890, p. 447.)

[See also Dr. Belfield's article on the Operative Treatment of the Enlarged Prostate, at page 329 of this volume of the *Retrospect.*]

SUPRAPUBIC PROSTATECTOMY.—The Technique of.

As to the technique of suprapubic cystotomy, it needs only remark that the Petersen rectal bag has been quite largely abandoned and the modified Trendelenburg position adopted for eliminating the peritoneal fold from the field of operation. The transverse incision of the soft parts and Helferich's partial resection of the symphysis seem to be regarded as unnecessary features. The extreme distension of the bladder formerly considered an essential safeguard is no longer practised, since with the patient in the inclined posture an almost empty bladder can be opened with safety. An important advance in the removal of prostatic obstruction is the enucleation of all accessible masses in the substance of the organ instead of a simple levelling off of projecting tumours by scissors or cautery; by this means not only the salient middle lobes, but also the no less obstructing, though less obtrusive lateral enlargements, are easily removable. This process of enucleation obviates the necessity for the operation suggested by Dittel, under the title of "lateral prostatectomy." After emphasizing the importance of the neglected lateral lobes in the induction of retention, and criticising Harrison's plan of treating them by prolonged pressure as inefficient, Dittel shows that they can be reached by separation of the rectum from the prostate; and by operation upon a cadaver with lateral enlargement of the prostate, he proved that the excision of portions of the lateral lobes from the rear—without opening the bladder—relieved the prostatic obstruction by permitting the vesical surfaces of these lobes to fall apart. He admits that suprapubic cystotomy would also often be necessary for the removal of intra-vesical obstacles; and that the two operations, even if separated by an interval of weeks, would rarely be sustained by the same subject until patients are educated to submitting to them at an early stage of prostatic disease. Dittel makes no allusion to the fact that the lateral lobes can be and have repeatedly been removed by enucleation after suprapubic cystotomy. Of the several surgeons who have independently adopted this measure McGill deserves especial mention; in several instances he has enucleated lateral masses weighing from one-half to two ounces. The ingenious operation suggested by Dittel seems, therefore, to have been anticipated by a much simpler, safer, and more practicable means of attaining the same end. Prolonged retention of a tube in the perineal wound, as advised by Harrison, has been attended in his and other hands with one unpleasant result

—the persistence of a permanent and obstinate fistula. Wishard, of Indianapolis, has successfully practised a means for obviating this objectionable sequel: When the tube is finally removed he curettes the granulating surfaces, incises the anterior and posterior angles, and closes the entire wound by sutures, drawing the urine by catheter for several days. By this means he secured immediate and complete union after drainage for periods up to eighty-one days. (Dr. W. T. Belfield, Chicago, American Journal, Nov. 1890, p. 450.)

ULCERATION OF THE BLADDER.

It is perhaps hardly realised by the profession that a very large proportion of cases of obscure pains in the perineum and penis, accompanied by hæmaturia, are ulcerations of the posterior wall of the bladder. I have known such ulceration last for years without extending. Not infrequently they are covered with lime phosphate. It is more than probable that these were the cases encountered by Sir Henry Thompson, and reported by him as "digital exploration. Nothing found except a scale of phosphatic matter adherent to bladder." Such cases are greatly benefited by lactic acid injections, 1 per cent. to 4 per cent., given daily, or by scraping. It might be supposed that pellucid urine would exclude the presence of ulcerations of the bladder. This is not always so. I have seen deep ulcers with perfectly clear urine. There is a near connection between these ulcerations and tuberculosis. Such ulcerations are easier seen than felt. (Mr. Hurry Fenwick, p. 343.)

URETHRAL DISCHARGES.—Treatment by Douching.

Mr. Reginald Harrison (*Medical Press and Circular*) believes thorough irrigation to be a useful treatment in chronic prostatic, seminal, and "gleety" discharges. He prefers the sulpho-carbolate of zinc lotion (2 grs. to the ounce), and would use about six ounces for each irrigation. In orchitis following urethral irritation, solution of perchloride of mercury (1–10,000) he has found effective in shortening and moderating the attack. A Higginson's syringe is made use of, or a syphon apparatus, combined with a catheter to direct the stream from the deep urethra outwards. Douching the urethra behind a stricture with warm water has, in Mr. Harrison's experience, assisted the process of dilatation, and strictures thus treated show less tendency to contract. (Edinburgh Medical Journal, Jan. 1891, p. 677.)

VESICAL CALCULUS.—Results of Operation in 114 Cases.

At the Royal Medical and Chirurgical Society, on Nov. 25, 1890, Mr. John H. Morgan read a paper on 114 Consecutive Cases of Operation for Calculus in the Bladder performed at the Hospital for Sick Children, and compared the methods adopted. The paper was accompanied by a table giving the date and nature of the operation, the age and sex of the patient, the name of the operator, and the result, with such details as were to be found in the operation book.

Of the 114 cases, seventy-five were subjected to lateral lithotomy, with four deaths. Lithotrity was performed in eleven cases (three females), with one death. In fifteen instances the supra-pubic operation was adopted, of which two ended fatally. Of the remainder, nine were cases of vesico-vaginal lithotomy, all recovering from the operation. In four patients the calculus was successfully removed from the urethra. The cause of death was given in each instance where it occurred, and the various casualties at or subsequently to the operation were enumerated. Some details were given with regard to calculi which were remarkable on account of size, composition, or other peculiarities, and the calculi were exhibited. The results and merits of the various operations were discussed, and the following propositions made from consideration of the facts given in detail: 1. That in the cases of boys and girls small stones should be dealt with by litholapaxy. 2. That stones composed of oxalate of lime or of such size as not to be readily grasped between the blades of a lithotrite should be removed by the lateral operation in the case of boys. 3. That the supra-pubic operation should be reserved for stones of very large size or inconvenient shape in boys or girls, or cases of calculus embedded in a saccule of the bladder or impacted in the mouth of a ureter. (Lancet, Dec. 6, p. 1217.)

GENERAL SURGERY, AND AFFECTIONS OF THE BONES, JOINTS, ETC.

CONGENITAL CONTRACTION OF THE FINGERS.

At the Medical Society, on Dec. 8, 1890, Mr. William Adams contributed a paper on Congenital Contraction of the Fingers, and its association with "hammer-toe." The author reviewed its clinical history in three distinct stages. In the first stage, observed in children from one to two years of age, the little finger only was involved, and this was more or less bent, with an inclination towards the median line of the hand; the second and third phalanges were flexed upon the first, which was never flexed, and in the later stages became hyper-extended. The bent little finger could easily be straightened, and there was no evidence of any contracting force, either by tendon, fascia, or skin; the second and third phalanges simply dropped down, evidently from some failure in the muscular power of extension. This presented a remarkably close resemblance to what took place in the first stage of "hammer-toe," with which this affection was allied. The second stage was essentially one of confirmed contraction of the little finger, which took place gradually, if the malposition in the first stage had not been corrected; sometimes a contracted fascial band running longitudinally, and adherent to the skin, became prominent. The finger could not be straight-

ened by any moderate amount of force, and the skin on the palmar aspect appeared to be thin, short, and contracted. The late Mr. Tamplin believed a congenital deficiency of the skin was the cause of the contraction. Spontaneous arrest took place in this stage, in a large proportion of cases with some deformity and impairment of function. In the third stage, when spontaneous arrest did not take place in the second stage, increase of the contraction occurred at a late period, in a certain proportion of cases, from sixteen to twenty years of age; all the fingers became involved, and there was evidence of fascial contraction of a peculiar kind, differing widely from that in Dupuytren's. There was some appearance of a central flat band of fascia, about three-eighths of an inch in width, running lengthwise along the first and second phalanges. The terminal fibres of the fascia inserted into the skin were involved in this band, and contributed to the appearance of skin contraction. In the little finger in many cases there was an appearance of a contracted lateral band of fascia, generally on the outer side. The first phalanx was always drawn backwards or hyper-extended. This period of increase seemed to occur more frequently in young ladies of a neurotic temperament. The etiology of this congenital finger contraction was very obscure. It used to be thought to depend upon a congenital deficiency of the skin, but the appearance of skin contraction, the author believed, to be a secondary affection. The failure of the power of extension in the first stage, when the second and third phalanges simply dropped, might possibly be due to some failure or imperfect development of the lumbricales and interossei muscles. The hereditary character of this form of finger contraction was well known, and as it was of common occurrence and spontaneous arrest took place in the majority of cases, it was only regarded as the crooked little family finger; but should contraction advance and the other fingers become involved —i.e., reach the third stage,—it assumed a more serious character, and medical advice was sought. The treatment in the first stage was essentially preventive, the object being to prevent the dropped finger (always the little finger) falling into a stage of confirmed contraction. A light retentive metal splint, or a piece of whalebone worn inside the finger of a glove, at first day and night, and afterwards at night only, for two or three years would be sufficient. In the second stage—viz., that of confirmed contraction of the little finger, seldom reached under ten years of age,—the object was to overcome the contraction and straighten the finger with full muscular power. It was formerly thought this might be done by mechanical means alone, but in 1885 Mr. Adams adopted the plan of dividing the longitudinal bands of fascia, as well as the terminal branches passing towards the skin, before commencing the extension, which must be continued night and day for a period of from three to six months by an instrument with rack-and-pinion movements corresponding to the phalangeal articulations. It might be then

gradually discontinued and a simple form of a metal retentive instrument applied for night use. In the third stage, in which all the fingers were sometimes involved, the operative and mechanical treatment were essentially the same as that described in the second stage. The after-treatment was also the same, but the extension instrument should be worn day and night for the full period of six months. Casts and photographs of several cases which had been successfully treated in the third stage were exhibited to the Society. (Lancet, Dec. 13, p. 1272.)

DISLOCATIONS OF THE SHOULDER.—A New Method of Reducing the Anterior Forms of.

In fifty-one cases in which the method described as follows was adopted, 37 were successful and 14 unsuccessful. Those who have employed Kocher's method will recall the fact that it is seldom that the bone does not return to its place during external rotation, and it seemed rational, therefore, to expect to accomplish reduction by quick downward traction and external rotation, first allowing the arm to hang loosely by the side—that is, be adducted—and to this, for the sake of sweeping the head of the humerus well under the capsule, adduction of the arm upward and inward across the chest was added; but there has been no successful case in which the reduction was not accomplished by the first two manœuvres, and in most of the failures by the new method where Kocher's method succeeded at all, the third manipulation was necessary to effect the reduction. An opportunity to carry out this idea did not present itself for more than two months, when a stalwart, semi-intoxicated longshoreman entered the dispensary of Chambers Street Hospital. Examination showed a typical medium high anterior (subcoracoid) dislocation of the left humerus. As we both stood, I took the patient's left wrist lightly in my left hand, flexed his elbow to an angle of 90°, and allowed his left arm to hang loosely by his side. Standing thus, chatting with the patient, as I jostled the affected limb lightly, watching to catch the patient off his guard, I made, at a moment of complete relaxation, a quick, smart, downward stroke with my right hand on the anterior surface of his flexed forearm close to the elbow joint, following this immediately by slight external rotation, and this by adduction upward of the arm and forearm across the chest—all more quickly than I can now narrate it—and the reduction was accomplished. In regard to the application of the method, it is to be remembered, first of all, that complete relaxation is essential to success. To accomplish this, the easiest way is to quietly converse with the patient or his friends, and distract his attention. If this be impossible, a weight on the flexed forearm, or pressure on the same by the surgeon's disengaged hand, may produce the desired effect. If relaxation without ether is not obtainable, Kocher's or other methods are to be employed. It is well to warn the operator not to mistake for complete relaxation the

flabby deltoid in the low anterior dislocations. The posture of the patient or surgeon is, as before noted, a matter of indifference; one may sit while the other stands, or both may sit or stand. We can say of the new method, as has been said of Kocher's: "It is practically without danger to the vessels and nerves," and to this we may add the humerus itself. A fracture of the humerus, radius, or ulna would be a contra-indication to the employment of the method. (Dr. Carter S. Cole, New York Hospital, N.Y. Medical Journal, Feb. 28, 1891, p. 240.)

FLAT BONES OF THE SKULL.—Tuberculosis of.

Tuberculous caries and necrosis of the mastoid process is, of course, a well known and common affection, but tuberculosis of the flat bones of the skull is very rare, and only a few cases have been placed on record. This disease affects young adults, and generally commences with dull pain in the head and pain on pressure over the affected part. These symptoms are presently followed by the formation of a fluctuating or semifluctuating swelling—in fact, a chronic abscess; in some cases, however, the first symptoms after the pain are those of pressure on the brain, due to the formation of a collection of pus between the dura mater and the skull. When the abscess is external, it bursts after a time or is opened, and then, on probing the wound, the bone is felt to be bare, soft, and breaking down under the probe, and usually one or more small necrosed fragments are present. The bone most commonly affected is the frontal, especially in the neighbourhood of the orbital margin and the external angular process; sometimes, however, the parietal, and more rarely the occipital, bones are the seat of the disease. As a rule, the affection only affects one part of the bone at first, but it not uncommonly appears afterwards in other parts of the same bone or in other bones. The disease apparently more often commences in the diploë than in the periosteum. In the diploë we find the usual two forms, namely, soft caseating areas or one or more sequestra; the latter are most common. These sequestra are generally small, about the size of a pea or bean, but they may be more extensive, and in one or two cases they have been as large as a five-shilling piece; they generally involve the whole thickness of the skull, and in Volkmann's cases the inner table was more extensively necrosed than the outer. As a rule, tuberculous disease of the flat bones of the skull only occurs in the course of very severe tuberculous bone disease; it may be the first affection, but generally it only commences after other bones have become involved. Thus in a case which I have seen lately, there was previously disease of the spine, disease of a rib, and disease of the left elbow-joint, with abscess formation in each instance, and the upper part of the sternum has lately become affected. The occipital bone was the part involved, and there was a considerable fluctuating swelling over the region of the external occipital protuberance. In one case

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mentioned by Israel, the disease followed a compound fracture of the skull, and there was no previous tuberculous disease elsewhere, so that it was in all probability a case of infection of the wound from without. (From Mr. Watson Cheyne's Lectures on the Pathology of Tuberculous Diseases of Bones and Joints, British Medical Journal, April 4, 1891, p. 741.)

HOT WATER.—Use of During Operations.

To prevent chilling, the patient should not only be protected by warm clothing, but the wound should be douched with hot water containing the disinfectant. The exact temperature of the water is a matter of much importance, as the term "hot" is indefinite and misleading. In the haste of an operation the hand is often employed to determine the temperature of the water. This test varies somewhat with different individuals, as one person will shrink from placing his hand in water at a temperature which another may bear with little inconvenience. I have frequently tested the temperature of water in which an assistant could thrust his hand, though compelled to withdraw it instantly. This temperature does not exceed 150° F., but more often is 145° F. The hand I regard as a sufficiently good test for a temperature of 145° F. to 150° F. Nor should I care to apply water at a higher temperature than 150° F. to the wound. The late Dr. Varick, of Jersey City, who urged the use of hot water, advocated using water "slightly" below the boiling-point on operation wounds. Water at that temperature would, however, be destructive to tissues, for in my experience water at a temperature of 150° F. will destroy living tissues if it is allowed to remain in contact with them. It can be used at this temperature as a douche only—that is, it must be dashed on the wound. When applied to a fresh wound the surface should be rendered of a dull-gray colour. The patient is usually instantly aroused by the heat. The best method of applying the water is by pouring from a pitcher, but not continuously; it should rather be dashed into the wound so that it will penetrate every recess. The effect of the hot water is also seen in the arrest of all oozing of blood from the wound, and this arrest of hemorrhage is permanent, and prevents secondary bleeding. The application of the dressings immediately follows, and as these consist of materials retentive of heat, there can be no chilling of the patient by the dressings. (Dr. Stephen Smith, New York, Medical News, Oct. 11, p. 354.)

OSTEITIS DEFORMANS.—Facts respecting.

It may be said that the following facts have been fairly well established in respect to osteitis deformans:—1. That it is a disease chiefly of senile periods of life. 2. That it may occur in either sex, but is more frequent in men. 3. That it often happens to those who have a gouty family history. 4. That it is probably more common

in England than elsewhere. 5. That it consists of a process of osteitis and periostitis, attended by the abundant formation of ill-developed new bone, and the weakening to some extent of the old. 6. That it is often in the early stages restricted to one bone. 7. That it tends in all cases to become generalised, involving all the bones in the body. 8. That it has no connection with syphilis, although it may be simulated by it, especially by the hereditary form. 9. That it runs a very chronic course, lasting ten to twenty years, and, indeed, in itself rarely causing death. (Mr. Jonathan Hutchinson, Medical Press and Circular, Nov. 12, p. 491.)

POTT'S DISEASE.—Lateral Deviation of Spine in.

Dr. Robert W. Lovett (*Boston Medical and Surgical Journal*, October 9th, 1890) calls attention to this symptom, which he says is rarely spoken of at all in the textbooks, and is then regarded as of no special significance and as probably due to the wearing away of the vertebral bodies more on one side than the other. The only article which deals with it as its importance warrants is one by Dr. Bartow in the *Annals of Surgery* for July, 1889. Dr. Lovett has looked for the last nine months for the existence of lateral deviation in nearly every case of Pott's disease that has come under his care. He has found it exceedingly common, and frequently combined with rotation of the vertebræ, as in scoliosis. He attributes it to muscular spasm, similar to that so often seen in joint disease, and looks upon it as one of the earliest symptoms of Pott's disease. He found that the rotation did not always follow the same rule as in scoliosis, but that in at least a third of the cases rotation forwards and not backwards corresponded to the convexity of the curve. This lateral deviation in Pott's disease is most quickly overcome by recumbency and extension; but the ordinary treatment by plaster-of-paris jacket and extension is generally sufficient to overcome the lateral deformity if efficiently carried out. (Supp. British Medical Journal, Nov. 22, 1891, p. 58.)

REMOVAL OF BROKEN NEEDLE.—Simple Method.

I think it may be of service to record a simple means by which I obtained the removal of a broken needle from the heel of a young lady, aged 12, whom I saw lately walking about on her toes to avoid her right heel, into which a needle had been broken, touching the ground. The buried end could be felt, but any pressure led to its further entry. I directed her to wear a large thick corn-plaster around the spot, with a little wet cotton-wool in the centre, and to tread freely on the heel. Within a week afterwards she showed me the needle, which had protruded, and she had easily withdrawn it. Thus no wound was made, and no scar left to be a tender spot on the plantar surface. (Dr. Charles Steele, Clifton, British Medical Journal, Oct. 18, p. 897.)

SHOCK.—Its Prevention During and After Operations.

Long since, impressed with the dangers of shock in many modern operations, owing to the long continuance of the anæsthesia, the liability to chilling and to depression from the loss of blood, I have been accustomed, where time will permit, to prepare patients for operations by stimulation to the extent of semi-intoxication. The results have been most happy, especially with feeble patients whose condition has rendered the propriety of an operation very doubtful. The course which I pursue is to give the stimulant in hot milk, beginning from *eight to ten* hours before the operation. Such quantities are given, and so frequently, as to secure a state of happy indifference to the operation on the part of the patient. If the operation is to be at three o'clock in the afternoon, I give directions to commence at six or eight o'clock in the morning. I prefer whiskey to brandy, owing to its slow and persistent operation over a much longer period. If the patient is not accustomed to the habitual use of stimulants I order an ounce of whiskey every two hours in half a pint of hot milk. If at twelve o'clock, or even at ten, sufficient progress has not been made to render it quite certain that semi-intoxication will be secured at the appointed time, I give an ounce of whiskey in milk every hour during the remaining time. When the requisite effect has been obtained the stimulation should be discontinued. In the case of habitual drinkers I have given two ounces every hour. It is important to give the stimulant in hot milk, which will furnish a large supply of easily-digested and readily-assimilated food, in a form most useful to sustain the vital energies during the critical period of a severe operation, or during a necessarily-protracted operation. The patient thus prepared has suffused eyes, a flushed skin, a slow full pulse, and complete indifference to the operation, though perhaps previously extremely timid. Frequently he jests and sings when taken to the operating-table. He is warmly covered except on the part to be exposed for the operation. The assistant who administers the anæsthetic is directed to suspend it as frequently as possible. It will be a matter of surprise to anyone who first administers an anæsthetic to a person partially, or quite, intoxicated by the foregoing means, to observe how quickly, and without a struggle, the patient comes fully under its influence, and how small the quantity required. The pulse remains at its normal standard throughout the operation, the breathing is quiet and regular, the skin continues warm and red, and without unusual perspiration. During the twenty-four to forty-eight hours subsequent to the operation the condition of the patient remains good. The pulse continues full, the skin natural, the respiration undisturbed, and the mental state is that of indifference, or hopefulness. Neither primary nor secondary shock occurs under such circumstances. (Dr. Stephen Smith, Professor of Clinical Surgery in University of New York, Medical News, Oct. 11, p. 353.)

TUBERCULAR JOINT DISEASE.—Acute Tuberculosis in.

As regards acute tuberculosis, there can, I think, be little doubt that in some cases the source of the general infection is the diseased joint. In the case of hip-joint disease in which acute tuberculosis is most common, the proportion of cases is something like 4 per cent. Now, though one of these cases might possibly be rescued by early operation, there is no doubt that in some instances the operation itself is, directly or indirectly, the cause of the dissemination of the virus; and as a matter of fact, the mortality from this disease after excision is still from 2 to 4 per cent. König states that of eighteen cases of acute tuberculosis in his practice, sixteen occurred after operation; and in my own statistics, I have a record of seven cases of tubercular meningitis occurring after operation, two at least being, I think, directly caused by it. My own opinion is that while it is quite possible that some cases might not occur if early operation were performed, this advantage is counterbalanced by the risk that the operation itself may lead to dissemination of the disease, and therefore I do not think that the hope of saving a patient from acute tuberculosis is of itself a sufficient reason for operating. (Mr. Watson Cheyne, Lancet, Nov. 15, p. 1020.)

TUBERCULAR JOINT DISEASE.—Phthisis in.

As regards phthisis, I believe that it is not uncommonly the result of the local disease either by direct infection or by the local trouble so lowering the general condition of the patient as to render him more liable to fresh infection from without. That phthisis may arise by infection from the joint seems to me the only explanation of the fact that phthisis is most common in disease of certain joints, and not equally common in disease of all joints. Thus in my own statistics, and in almost all those in which the presence of phthisis is noted, I find that it is much more frequent in cases where the tarsus or carpus, and possibly the shoulder, are affected, than where any other joint is the seat of disease. That, apart from the question of auto-infection, the local trouble may predispose the lungs to disease is probable from the fact that marked improvement in the lung trouble, when it already exists, often follows amputation above a tubercular joint. At the same time, early operation does not by any means always rescue the patient from a subsequent death from phthisis, it may lead to the very danger it is designed to avoid. Thus, to mention one fact, Middeldorpf found after twelve years and a half that 16 per cent. of those amputated had died of phthisis, 14 per cent. of those excised, and 30 per cent. of those where caseous deposits were scraped out. As regards phthisis, therefore, I do not think that we would be justified in proposing operation with the sole view of preventing its occurrence, although I hold that this hope should have considerable weight where other circumstances are present which point to the desirability of operating—in other words,

I think it may be allowed to turn the scale in favour of operation, where otherwise the decision might be doubtful. (Mr. Watson Cheyne, Lancet, Nov. 22, p. 1094.)

TUBERCULOUS DISEASE OF BONES AND JOINTS.—The Tubercle Bacillus in.

I have on repeated occasions examined the bones, synovial membrane, and pus from strumous joints, for tubercle bacilli, but as I have not always kept notes of the cases I cannot give the precise figures. The general result of my examinations has been that after sufficiently careful and prolonged search bacilli could always be found, but that in most cases they were extremely few in number. That the bacilli are present even when difficult to demonstrate by means of the microscope is evident from cultivation experiments, and from the results of inoculation of animals, but it is not easy to explain their apparent small numbers, and various theories have been advanced. As I have already mentioned, some authors suppose that the bacilli are most numerous at the commencement of the disease, and subsequently decrease in numbers. According to others they rapidly pass into the spore stage, and are then no longer recognisable by means of the microscope. My own belief is that we do not as yet possess a method by which we can stain all these bacilli at all stages of growth. I found very early in working with the tubercle bacillus that if we took sections in which large numbers of bacilli were present, and stained them in a simple watery solution of fuchsine, without any aniline oil, carbolic acid, or other similar body, a considerable number took up the stain and a few retained it even after a short immersion in the dilute nitric acid. Thus it was evident that the staining reactions of these bacilli differ even in the same specimen, and this is I think due to differences in the age and stage of growth of the organisms. At a certain age or stage of growth the sheath is probably more easily penetrated by the stain than at another age, and this corresponds with what we know with regard to other organisms. As showing that the external conditions cause differences in the staining reactions, I may recall the fact that the bacilli in smegma stain like tubercle bacilli, but after being cultivated on the ordinary culture media they lose this reaction. Similarly various bacteria, when grown on solid culture media covered with a layer of butter, show the same reaction as tubercle bacilli in retaining the primary stain in spite of washing in nitric acid. To sum up, we may take it that only few bacilli can as a rule be demonstrated in tuberculous joints and abscesses, but that they can usually be found in cases where the disease is progressing if the search be sufficiently careful and prolonged; and further, that our present methods of staining do not permit us to draw conclusions as to the numbers present. (Mr. Watson Cheyne, British Medical Journal, April 4, 1891, p. 743.)

AFFECTIONS OF THE SKIN, ETC.

ACNE.—Dr. Blanc's Treatment of.

In a paper on the treatment of acne in the *Journal of the American Medical Association* of Oct. 25, Dr. Henry W. Blanc, of New Orleans, lays particular stress on the importance of keeping the digestive organs in good condition by avoiding improper food and securing a movement of the bowels daily. The comedones and pustules should be opened regularly by a lancet and comedone-compressor, and it should be remembered that scarring is less likely to result from the disease if these measures are carefully carried out than if the pustules are not interfered with. As an application, sulphur has given the author better results than any other agent. As a lotion he prefers the following modification of the well-known *lotio alba:* ℞. Potassium sulphide, zinc oxide, zinc sulphate, glycerine, of each, 2 drachms; rose-water sufficient to make 4 ounces. M. Apply to the skin after having thoroughly removed the oily secretion. This application produces a sensation of puckering and dryness of the skin.

It is well to alternate this lotion with the following; ℞. Precipatated sulphur 1½ drachms; salicylic acid 20 grains; fluid extract of ergot 2 drachms; lanolin sufficient to make 1 ounce, M. This should be applied morning and evening after having washed the face with water and Hebra's alcoholic soap-lotion. [Hebra's soap-solution is composed of green soap 4 ounces, dilute alcohol 2 ounces, spirit of lavender 1 drachm.]

In some cases ichthyol and salicylic acid combined as follows are useful: ℞. Ichthyol 6 drachms; salicylic acid 40 grains; vaseline 2 ounces. M. Apply to the face night and morning.

During the treatment of acne it is important to avoid anything which irritates the skin, such as dust, frequent washing, and friction with a coarse towel. It is well to use a bland soap in order to remove the oily secretion of the sebaceous glands, or in its place the following lotion may be used: ℞. Boric acid, glycerine, of each, 2 drachms; alcohol 1 ounce; ether sufficient to make 3 ounces. M. This may be allowed to dry upon the face, and will not attract attention. (Medical News, Nov. 29, p. 575.)

ACNE.—Hertzmann's Treatment of.

According to Hertzmann, the following treatment should be employed in cases of acne.

Acne Indurata et Pustulosa.—The pustule is to be evacuated and cauterized by introducing the tip of a piece of wood dipped in a solution of perchloride of iron, and frictions of the face are to be made with carbolic acid of the strength of 3 to 5 per cent., in water, and afterward ℞. salicylic acid 45 grains; alcohol (95 per cent.) 5 ounces, is to be applied to the skin.

Acne Papulosa.—For acne papulosa, where the papules are small and numerous, frictions with tincture of green soap are very useful, the prescription being made up as follows: ℞. Green soap 1 ounce; alcohol (95 per cent.) 2 ounces; spirit of lavender ½ ounce; water 3 ounces. After this is applied vaseline or cold cream should be smeared over the skin.—Where the disease is very severe the following prescription is advisable: ℞. Naphthol 2½ drachms; precipitated sulphur 1½ ounces; lanolin and green soap, of each, 2 ounces.

Seborrhœic Acne.—For seborrhœic acne daily frictions with the following solution are useful: ℞. Flowers of sulphur 2 ounces; lime 4 ounces; water 1 pint. Boil, decant, and keep in a closed vessel. Should application of this medicament produce much irritation of the skin cold cream should be applied. (Medical News, Dec. 27, 1891, p. 690.)

ECZEMA AND ACNE.—Dr. Unna's Treatment of.

According to *Le Semaine Médicale,* Sept. 3, 1890, Unna recommends the following ointments for the treatment of eczema and acne:

Eczema and Acne.—℞. Lanolin 5 drachms; liquid chloride of calcium 10 drachms; oil of cade 2½ drachms; zinc ointment 7 drms.

Chronic Pruriginous Eczema.—This ointment is employed in cases of chronic eczema of a pruriginous form, accompanied by profound infiltration of the skin. ℞. Zinc ointment, lanolin, liquid chloride of calcium, 2½ drachms each; precipitated sulphur 45 grains.

Acne.—The following ointment may be used in cases of acne: ℞. Lanolin, lard, liquid chloride of calcium, oxygen water, 2½ drachms each; precipitated sulphur 1 drachm. The action of the oxygen water in this last prescription is for the purpose of removing the comedones found in the face of persons suffering from acne.

Comedones.—Wherever rapid decoloration of comedones is desired the following may be used: ℞. Oxygen water 5 to 10 drachms; vaseline 5 drachms; lanolin 2½ drachms. (Med. News, Oct. 11, p. 373.)

ECZEMA OF ANUS AND GENITALS.—Lustgarten's Ointment.

The following ointment is recommended by Lustgarten for the treatment of eczema of the anus and genitals: ℞. Oleate of cocaine 1–2 parts; lanolin 40 parts; olive oil 10 parts. Two applications daily, followed by some absorbent dusting powder. Hot hip baths and soap. For the relief of pruritus ani he uses suppositories containing the oleate of cocaine. (British Journal of Dermatology, Nov. 1890, p. 358.)

ALOPECIA.—Lassar and Grœtzer's Treatment of.

The following treatment of alopecia is recommended by Lassar and Grœtzer in the *Journal d. Malad. Cut. et Sylph.,* Oct. 1890. 1. Thoroughly wash the head for ten minutes with tar soap. 2. Wash with hot water and finish with cold; wipe and dry. 3. Rub in a solution of perchloride of mercury, 1 to 900 (equal parts of water,

glycerine and Eau de Cologne). 4. Rub in a solution of naphthol, as follows:—Naphthol, 1 part, absolute alcohol, 200 parts. 5. Anoint the scalp with a pomade containing:—Acid. salicyl. 2 parts; tinct. of benzoin, 10 parts; neat's foot oil, 100 parts. The treatment should be carried out daily, and continued for six weeks or more. (British Journal of Dermatology, Feb. 1891, p. 67.)

ALOPECIA AREATA.—Quinquand's Treatment of.

Quinquand (*Sem. Médic.*, 17 Aug. 1890, *Monatschefte f. pract. Dermat.*) recommends the following treatment: The hair is cut short, and the whole scalp is washed with soap, night and morning; after which the following solution is rubbed over the parts affected:—Hydrarg. biniodid., 0,2; hydrarg. perchlor., 1,0; alcohol 90%, 40,0; aquæ destill., 250,0.—The head is again washed, and one of the following liniments is well rubbed in, the liniments being alternately employed, each for eight days. (1.) Balsam r. Fioravanti, spirits of camphor āā 100,0; liq. ammon., 6,0. (2.) Balsam r. Fioravanti, spirits of camph. āā 100,0; tinct. pyrethri, 6,0.—Every sixteenth day the following is applied: Acidi chysophan., acidi salicyl., acidi borici, āā 2 parts; vaselin, 100 parts. (British Journal of Dermatology, Feb. 1891, p. 68.)

BURNS.—Bardeleben's Treatment of.

In the Friedrichshain Hospital in Berlin the following is the method of treatment of burns employed by Dr. Bardeleben (*Lyon Médicale*, September 14, 1890). The burned surface is first carefully washed with a two or three per cent. solution of carbolic acid or a three per mille solution of salicylic acid. The blisters are then opened, and the entire surface covered with subnitrate of bismuth finely powdered, and over this a layer of cotton-wool. This dressing is to be renewed as soon as it becomes at all moistened by discharges from the wound. If the burn is very extensive, an ointment of bismuth is substituted for the dry powder. Dr. Bardeleben asserts that with this dressing cicatrization is much more rapid and suffering much more quickly relieved than is the case with any other form of treatment. He states that, in spite of the large quantities of bismuth which he has employed, he has never seen any symptoms of poisoning follow its use. (Therapeutic Gazette, Nov., p. 755.)

CHAPPED HANDS.—Use of Menthol for.

A writer in the *Provincial Medical Journal* recommends the following as a soothing application for chapped hands: Menthol, 15 grains; salol, ½ drachm; olive oil, ½ drachm; lanolin, 1½ ounce. The pain, he says, is at once allayed after the first application and the skin at the same time is softened. The fissures will heal promptly under a systematic use of the application once or twice daily. (N.Y. Med. Journal, Dec. 20, p. 688.)

COMEDONES.—Unna's Ointment for.

The *Canadian Pharmaceutical Journal* quotes the following prescription, said to be used by Unna in the treatment of comedones: ℞. Solution of hydrogen peroxide, vaseline, of each 2 ounces; lanolin, 1 ounce; acetic acid, 1 drachm. Mix and perfume. (Medical News, Jan. 24, p. 110.)

COMEDONES.—An Ointment for Decolourising.

According to Leistokow (*Monatsh. f. pract. Dermat.*), excellent results have been recently observed from the employment of peroxide of hydrogen for decolourising comedones. Unna prescribes it in the following formula:—℞. Lanolin, 10 parts; vaselin, 20 parts; sol. hydrog. peroxid., 20-40 parts. If the comedones be complicated with papules and pustules, he recommends the employment of sulphur or sublimate for the removal of the latter. (British Journal of Dermatology, Feb. 1891, p. 67.)

ERYSIPELAS.—New Methods of Treatment. (*Therapeutic Gazette.*)

Rosenbach's method consists in washing not only the erysipelatous patch, but the entire neighbouring surface, with soap and then bathing daily these patches with five-per-cent. solution of phenic acid dissolved in absolute alcohol. Very brilliant results are claimed to follow this method, both as regards the course of the disease and the febrile phenomena. Even absolute alcohol is said to produce a favourable action.

In Nolte's method the entire affected surface and surrounding zone are painted twice daily with a mucilage of gum-arabic containing from three to five per cent. of phenic acid.

The method of Koch consists in applying, by means of a camel's-hair pencil, the following ointment in a thin layer over the affected parts:—Creolin, 1 part; iodoform, 4 parts; lanolin, 10 parts. After the ointment is applied it is covered with a thin layer of gutta-percha. This method is said to be especially applicable to erysipelas of the face and of the hairy scalp.

In the method of treatment of Nussbaum and Brumm ichthyol is employed in collodion.

Hallopeau recommends the use of a solution of 1 part to 20 of salicylate of sodium. Thick cloths are wet with this solution, then applied to the affected parts, and then covered with a layer of rubber cloth so as to prevent evaporation. Almost immediate relief is obtained, and a cure is said to follow on the third to the fifth day.

Hunter recommends the injection of carbolic acid into the healthy skin at a distance from the part affected. This method of treatment is extremely painful, and is only applicable in severe cases of the face or hairy scalp.

Dr. Kraske advises making an incision in the healthy skin around the erysipelatous patch before applying the antiseptic substance.

Wölfler makes use of mechanical compression by bandages applied so as to circumscribe the inflamed tissue, while Dr. Kraske proposes elastic rubber bands to accomplish the same effect, where these are applicable. (American Journal of Med. Sciences, Feb. 1891, p. 179.)

FURNITURE POLISHER'S ECZEMA.—Treatment.

Blaschko (*Deutsche Med. Wochensch.*, No. 22, 1890) states that this eczema, to be recognised from the dusky-brown hue of the finger nails, as a rule extends to the intradigital folds, to the back of the hands, and sometimes even to the forearm. There are frequently on the back of the hands and fingers small isolated scaly patches which itch a little, but from time to time a very irritable, acute papular or papulo-vesicular eczema of the same parts, and even of the upper arm, may manifest itself. More rarely does it weep. As a rule, a scaly eczema succeeds the papular, with fissures on the hands and fingers. This may get well in two or three weeks, or may develop into a condition which may last for months, healing in one part, extending in another, and eventually may spread over the whole body, so that parts never in contact with the varnish are attacked. The treatment is that for ordinary eczema; but Lassar's paste, with 20 per cent. of balsam of Peru, has proved of much service. For the very dry forms he prefers the unguentum vaselini plumbicum; in the later stages tar soaps, tar-zinc pastes, or oleum rusci dissolved in benzol. He thinks the pyridin in the varnish is the cause. (Edinburgh Medical Journal, Nov., p. 489.)

ICHTHYOL VARNISHES.—Drs. Unna and Helmers.

One great disadvantage in regard to the employment of ichthyol to limited areas of disease has been the impossibility of applying it in any way that was at once easy and efficacious. The pure drug, apart from its unsightliness and objectionable odour, will not dry, even if spread in a thin layer, but remains for hours moist and sticky, and the various combinations with dextrin, gum and gelatine-glycerine paint have been found in practice to be inefficacious. Ichthyol collodium promised better, but the irritation which is caused by removing it is such as to more than counterbalance its beneficial effects. In the case of patients who are only able to follow out treatment at night the removal of these firm adhesive layers each morning, therefore, renders their employment impossible. In order to overcome this difficulty and to produce an impermeable layer of ichthyol, which could be easily and quickly removed without irritating the skin, Unna instituted a series of experiments in conjunction with Dr. Helmers, and arrived at the following formula, which he finds to answer his purpose fully:—Ichthyol, 40 parts (by weight); starch, 40 parts; albumen solution, concentrated, about 1-1½ parts; water, ad. 100 parts (i.e. about 20 parts). The constituents must be mixed in definite order, the starch must be moistened with the water, the ichthyol then rubbed well in, and finally

the albumen must be added. The concentration may be regulated by the thickness of the layer, the first application being wiped off with a moist cloth so as to leave the finest possible coating. Even a thick layer dries very rapidly, and can be washed off at any moment.

An *Ichthyol-carbolic acid varnish* having the same properties can be made in a similar way, but, of course, with the omission of the albumen. The formula is:—Ichthyol, 25 parts; carbolic acid, 2·5 parts; starch, 50 parts; water, 22·5 parts. The ichthyol and carbolic acid are dissolved in the water in a gentle heat, and the starch then added.

The first preparation, *Vernisium ichthyoli*, is recommended in acne where the skin is irritable, in rosacea seborrhoica, and in rosacea simplex, in ulerythema centrifugum (one form of "lupus erythematosus"), intertrigines, tubercular eczema, seborrhoic eczema, and erysipelas. It may with advantage be made a basis of other reducing and antiparasitic substances, such as chrysarobin (2-5°/₀), which may in this form be applied with confidence to the face, pyrogallol, resorcin, and sulphur, for the treatment of parasitic diseases, such as certain eczemas and psoriasis. But in this case it is better to mix, for every quantity of new substance added, an equal quantity of linseed oil, which is at once a reducing agent and a rapid seccative. (British Journal of Dermatology, April 1891, p. 133.)

IMPETIGO AND ECZEMA IMPETIGINOSUM.—Their Nature. Dubreuilli (*Annales de Dermatologie et de Syphiligraphie*, April 1890) discusses these questions, and concludes that there is but one form of impetigo—impetigo contagiosa—a disease well defined clinically, but which has no etiological individuality, due to the intra-epidermic inoculation of pyogenic microbes derived from any source; and that eczema impetiginosum is an eczema complicated with impetigo, from which it should be separated clinically. While Bockhart and Bousquet have found the staphylococcus pyogenes cereus and albus in the pus from the pustules, Pogge has found a micrococcus which gives rise to a pale brown cultivation which liquefies the gelatine, and thus differs from the other pyogenic microbes. It would seem as if inoculation with any pus may give rise to an impetigo. The propagation of the disease from one point to another occurs always in the same manner, viz., by scratching; hence it is infinitely more frequent on uncovered than on covered parts. The question of soil is another and an important point. It is plain that the same circumstances do not occasion impetigo in all persons; and more, that in addition to the predisposition of the individual, there is also that of certain regions. Puffy children, with fine skins, soft adipose tissue, large eaters, whose deceptive *embonpoint* veils a weak state of health, born of scrofulous parents, sometimes even of those distinctly tuberculous, are incontestably most

prone to impetigo, yet it may attack those who are most robust. An allied disease is ecthyma, which only differs from impetigo by the extensive inflammatory zone, red and indurated, which surrounds each pustule; by the pus, sometimes bloodstained; and occasionally by the greater depth of the lesions, which may leave a scar; finally, by the localization. This last distinction rules all the others. In the large majority of cases, impetigo is located on the face, ecthyma on the lower limbs. Eczema impetiginosum is far from having the well-marked physiognomy so characteristic of impetigo contagiosa. It resembles impetigo in its localization on the face, in its predilection for youth, in its purulent secretion, and in the thick and honey-like crusts which form; and these resemblances have induced some authors to maintain that impetigo is but a variety of eczema. A very distinctive point is this, that while impetigo contagiosa is comparatively easy to cure, eczema impetiginosum, on the contrary, is most rebellious. Under the influence of an appropriate treatment the characters are seen to change, the suppuration becomes less copious and less purulent, the crusts thinner, and may even disappear. One finds one's self face to face with an eczema of a simple type, dry, or at least oozing little, and offering all the resistance to treatment of a chronic eczema. The impetigo has been cured, the underlying eczema remains. Thus eczema impetiginosum is a hybrid condition—a chronic eczema on which an impetigo has been grafted. Therefore to cure this one must deal with the eczema, as, unless it is got rid of, the impetiginous crusts will in a short time be infallibly reproduced. (Edinburgh Medical Journal, Nov., p. 487.)

INGROWING TOE-NAIL.—Use of Cocaine in.

At the Meeting of the South-Western Branch of the British Medical Association, on Oct. 17, 1890, Mr. E. J. Domville (Exeter) read a paper on this subject, in which he advocated bathing the surface of the exuberant granulations with a solution of hydrochlorate of cocaine (grs. x. to ʒ i). After this, the operation of dressing under the nail with wool or lint was quite painless. If the application of the cocaine were repeated every other day for two or three weeks, the effect on the granulations was most marked, the antiseptic properties of the cocaine seemed to come into action, the surface of the sore became hardened and the exuberant tissue might be painlessly peeled off; and all this without confining the patient to bed, and even allowing of a certain amount of walking exercise. (British Med. Journal, Dec. 27, p. 1480.)

LUPUS.—Results of Koch's Method in.

[Dr. Louis Wickham, in his letter from Paris to the *British Journal of Dermatology* (March, 1891), gives the final conclusions of the Commission of Physicians of the St. Louis Hospital, on the subject of the treatment of Cutaneous Tuberculosis, and particularly Lupus, by Koch's method. Dr. Wickham had previously communicated

the first part of the conclusions of Drs. Vidal, Besnier, Fournier, Hallopeau, Quinquand, and Tenneson, assembled as a special commission since 30th of November, 1890. Their report did not touch upon the question of local results obtained, but was occupied chiefly in determining the influence of the lymph upon the general condition. The conclusions from this latter point of view were certainly not favourable. They observed, first, that in some cases the general reaction was so intensely alarming that death had been imminent; secondly, in eight cases congestion of the lungs resulted; thirdly, in ten cases hæmaturia; fourthly, in four cases albuminuria; fifthly, in five or six cases severe cardiac symptoms. They pointed out also great irregularity in the action of the lymph, and exposed all the dangers of the method. It had to be proved whether the risk of submitting to such dangers was compensated by the excellence of the results obtained in the local condition—in a word, Is the lupus cured, or even slightly improved? This is the question which Dr. Besnier discussed on Feb. 12th, in a remarkable report, before a large assembly of the Dermatological Society. The principal conclusions of this report are recorded in the table which Dr. Besnier has made in the treatment of 38 cases. Not one case was cured, not one case even nearly cured, and scarcely a visible improvement in any. On the contrary, twelve results *nil*, the lesions remaining as before, and eighteen very slightly improved.] (British Journal of Dermatology, March 1891, p. 69.)

MEDICATED GELATINS.—Dr. Unna's.

Of recent years Unna, as is well known, has given much time to the study of these forms of applications. (*American Journal of Pharmacy.*) These preparations are indicated in superficial inflammatory affections, when the skin is swollen, wet, and itchy. Very high temperatures and profuse sweating forbid their use. For a general basis the following formula is given, the figures within parentheses being used when a hard zinc-gelatin is wanted: ℞. Zinc oxide 15 (10) per cent.; gelatin 15 (30) per cent.; glycerine 25 (30) per cent.; water 45 (30) per cent.

In adding other drugs, the following directions may be useful: (1) Cerussa, iodide of lead, white precipitate, sulphur, iodoform, chrysarobin, in fine powder, may be mixed in any proportion required. A proportion of five to ten per cent. added to soft zinc-gelatin is recommended. (2) Carbolic and salicylic acids, resorcin, naphthol, creasote, and sulphide of potassium may be added to the hard gelatin in any proportion up to ten per cent. (3) Fats, balsams, tars, and ichthyol all make the basis softer. The proportion added is usually from ten to twenty per cent. (4) If we wish to combine drugs in 2 and 3, then the sum of the proportions must be attended to. For example, if resorcin and salicylic acid were both ordered, we should not prescribe more than five per cent. of each, if we wish the gelatin to form a good covering. (5) Powders may be combined in

any proportion. (6) Tannin, pyrogallol, and oxide of mercury cannot be added to the basis. (7) Corrosive sublimate, up to three per cent.; and camphor-chloral to two per cent.; ext. cannab. indic., from two to five per cent., may be used with soft zinc-gelatin.

The chemist is to dispense the different glues in pots, which are to be put boiling in water when the preparation is to be used. It is to be painted on the skin with a long-haired brush. The soft zinc-glue will form a useful protection to the sound skin near diseased areas to which strongly irritating applications have to be made. The diseases of the skin in which Unna's glues are recommended are:

Pruritus: Zinc-glue with ext. cannab. indic., chloral-hydrate, carbolic acid, creasote, salicylic acid, camphor, camphor-chloral, &c.

Artificial erythema and eczema: Two per cent. ichthyol, or five per cent. sulphur, instead of ordinary dusting powders.

Eczema intertrigo: Hard zinc-glue with ten per cent. ichthyol or five per cent. resorcin.

Eczema, with great itching: Two per cent. ichthyol or five per cent. ext. cannab. indic.

Peeling after acute eczema: Two per cent. ichthyol or resorcin, five per cent. sulphur, or one per cent. salicylic acid.

Ichthyosis: Two per cent. resorcin or five per cent. sulphur and ten per cent. fat.

Wounds and ulcers: Iodoform zinc-glue.

Acne pustulosa: After opening the pustules, paint with twenty per cent. bichloride of mercury, with or without two per cent. salicylic acid added to the zinc-glue. (American Journal, Oct., p. 398.)

ONYCHOGRYPHOSIS.—Hypertrophy of the Nails.

This disease consists of an abnormal increase of either, or both, the length or thickness of the nail. It is due to an excessive proliferation of the cells of the root. It may be uniform, affecting the whole nail, or only certain portions. In the form most usually observed the hypertrophy or excessive cell deposits occur principally in the central portion of the toe nail, elevating it there and producing an upward curvature. As a result the edges of the nail are depressed, and forced into the soft structures of the toe, producing more or less irritation and inflammation. In neglected cases the inflammation may lead to very serious consequences, requiring, at times, excision of the entire nail. This form of the disease is generally the result of prolonged pressure, as from tight fitting shoes, and is seldom observed anywhere except in the nails of the toes, especially the big toes. It is sometimes observed on the fingers in persons who from their occupation, or in obedience to fashion, are in the habit of wearing tight-fitting gloves. Idiopathic cases sometimes occur as the sequelæ of rheumatism, scarlet fever, and other diseases. This is, however, rarely noticed. The treatment of hypertrophy of the nail consists in removing the cause

of the disease, and restoring the natural condition of the parts. (Dr. John V. Shoemaker, Philadelphia, Journal Amer. Med. Assoc., Sept. 20, p. 428.)

PEDICULI PUBIS.—Brocq's Application for.

Brocq uses lotions composed of: Vinegar, 500 parts; sublimate, 1 part. This application is said not only to kill the pediculi, but also to remove the nits. (British Journal of Dermatology, Nov., p. 358.)

PILOCARPIN IN SKIN DISEASES.

Dr. H. G. Klotz, of New York (*Journal of Cutaneous and Genito-Urinary Diseases*), treated cases of eczema with daily hypodermic injections of ten to fifteen drops of 1 per cent. solution of muriate of pilocarpin. The first case was that of a man, aged 28, who had suffered for several years from eczema. The skin showed no great infiltration in any part of the body, but was dry, hard, resistent, and slightly scaling. After the first injections the reaction was very slight, moderate moisture appearing on some of the less affected portions, but it generally became more distinct, and after about twelve injections a general secretion of sweat was produced. The patient left the hospital after the seventeenth injection. The scales had almost entirely disappeared, the skin was much softer and more pliable, and showed "more natural turgor and elasticity," itching having become very insignificant. The second patient, aged 21, suffered from eczema squamosum and rimosum of both palms, which were covered with a very hard and thick horny skin divided by numerous cracks. Other treatment having failed, daily injections of pilocarpin were given, the patient at that time being unable to bend or close his fingers. After nineteen injections perspiration, which had previously appeared on the forearms, wrists, and backs of the hands, now appeared for the first time on the palms. On June 1st the horny condition of the surface of the palms had entirely disappeared, the skin looked natural, showed all the ridges and indentations of the surface, and was soft and pliable, and the patient could move and close the fingers without pain or difficulty. A third patient suffered from a general papular eczema, which was attended with considerable thickening on the flexor aspects of both elbows. Over the chest and abdomen and in a milder degree on the extremities the skin was hard, dry, slightly scaling, dark brown in colour, with numerous small hard papules of a somewhat lighter colour. The patient left the hospital after eight injections, at which time the skin had lost a great deal of the dryness and hardness, the papules had been greatly reduced in size, and the itching had almost disappeared. In the discussion at the meeting of the American Dermatological Association which followed the reading of this paper Dr. Hardaway stated that his experience of this treatment in ichthyosis, eczema, alopecia, and pruritus was not such as to lead him to continue it. (Jour. Amer. Med. Assn., Feb. 7.)

RINGWORM.—Treatment by Pitch Plaster.

The treatment of Trichophytosis Capitis and of Favus is discussed by A. Bertarelli in the *Bolletino della Poliambulanza di Milano*, 1890. He prefers the use of the pitch plaster to all other methods, and declares that patients find this manner of epilating much less painful than that with the forceps. It clears the scalp of hair much more effectively than the pinchers, and absolutely prevents self-inoculation. His plaster is composed of thirty parts of Burgundy pitch (résine de pin), eight parts of black pitch (pix navalis), two parts of Venetian turpentine, and one part of lard, spread upon small strips of linen. The crusts and scales are first removed from the scalp by the free use of grease and lead plaster, and then the strips of pitch plaster are applied. They are raised one by one after a day or two, and any hair that has escaped the plaster is to be removed with the epilating forceps. The scalp is then either washed with soap and water or bathed with a bichloride-of-mercury solution or Lugol's solution. Then the pitch plaster is re-applied, each time a more extensive area of the scalp being covered until the whole is enveloped in a true skull-cap. Thus the patient is gradually accustomed to the treatment, which must be continued for a varying number of months, say six to eight for favus and six to twelve for ringworm. (N.Y. Med. Journal, Dec. 6, p. 643.)

SCLERODERMA AND MORPHŒA.

The connection between scleroderma or morphœa and hemiatrophia facialis progressiva is one of considerable interest. The atrophic affection is an acquired one, being most frequently met with between the tenth and fifteenth years of life. The first change noticed is in the soft parts—a patchy discoloration appearing upon the skin, which becomes thin and emaciated, whilst the subcutaneous fat undergoes gradual absorption; the hair of the head, beard, eyebrows, and eyelashes undergoes change and may fall out; the skin becomes dense and almost cicatricial in character; whilst each feature, including the brow, eye, nostril, lip, cheek, and chin, with half the tongue and half the palatine arch, undergoes a progressive atrophy, which is accompanied by a diminution in the volume of the bones. Lande's theory of the origin of the disease assigned it to a primary atrophy of the fatty tissue and of the cells and fibrils of the connective tissue, leaving the elastic tissue unaltered; whilst Duhring describes unilateral facial atrophy as a variety of morphœa. If the latter view be accepted, and the natural history of the disease lends considerable support to it, the starting point of facial hemiatrophy is to be found in a disturbed innervation which involves the region of distribution of the fifth nerve. Most, if not all, cases of morphœa are developed in patches corresponding to the distribution of cutaneous nerves, and their close association with neuralgic conditions show clearly their dependence on altered nervous influence. About a year ago I saw a patient who was complaining of a severe

form of right tic douloureux. I have had within the past month an opportunity of again examining him. He experienced very little alleviation from the attacks of paroxysmal pain, but a remarkable change has developed over the area of distribution of the right supraorbital nerve. The hair over the right half of the frontal bone was considerably thinned and of a steel-gray colour, whilst the skin over the same area presented four or five linear bands of morphœa, glistening and waxy-like in appearance. (Dr. C. J. Nixon, Dublin Medical Journal, Feb. 1891, p. 101.)

[The article from which these remarks are taken contains the narrative of a most interesting example of the condition above referred to.]

SYCOSIS VULGARIS.—Dr. Rosenthal's Treatment.

Dr. Rosenthal (*Annales de Derm. et de Syph.*, No. 4, 1890) proposes a method of treating sycosis which presents three great advantages: the absence of pain, relatively rapid cure, and facility of application. The diseased parts must be carefully scraped every day; and morning and evening, and also three times during the day, the following pomade should be applied: Tannic acid 1 gramme; milk of sulphur 2 grammes; vaseline 20 grammes. The face of the patient remains uncovered during the day. At night, after friction, an emollient pomade is applied: Wilson's zinc ointment, salicylic paste, or Hebra's diachylon ointment. With the latter, if the dressing be carefully made, the formation of a sulphate of lead is not to be feared.

The author has lately employed with success the following paste: Tannic acid 5 grammes; milk of sulphur 10 grammes; oxide of zinc, starch, each 17·5 grammes; vaseline 50 grammes. This is applied morning and evening, gauze being placed above the dressing. Epilation is rendered unnecessary by this treatment. (The Practitioner, Dec., p. 468.)

ULCER OF THE LEG.—Unna's Treatment.

Dr. Hillebrand, of Cologne (*Medicinische Monatsschrift*), has obtained excellent results with Unna's treatment. This consists in thorough cleansing of the leg with soap and water and application in a thick layer of the following paste to the parts, excepting the site of the ulcer: ℞. Zinci oxidi, gelatin. puris, āā 10.00; glycerini, aqu. destillat., āā 40.00. The ulcer is then sprinkled with iodoform, and covered with a layer of cotton and sublimate or iodoform gauze. Over this is applied tightly a doubled-headed wet mull bandage, the ends crossing in front of the leg. The bandage should extend at least from the middle of the foot to the calf, and is supplemented by a second one similarly applied. The dressings are changed in from two to four or even eight days, according to the amount of discharge. The effect of this method of treatment is to stretch the healthy skin over the ulcerated surface, the integument being prevented from retracting by the application of the paste. The free

escape of cutaneous secretions is not prevented by the paste, as in the case of the adhesive plaster treatment. Hillebrand has obtained a complete cure in twenty-five cases where he employed this method. In all of them there was a rapid improvement in the local and general conditions, and the patients were able to work after application of the dressings. Equally good results were obtained in a case of chronic ulcer of the arm. (J. Amer. Med. Assoc., Nov. 29, p. 794.)

URTICARIA.—Use of Iodide of Potassium in.

Stern (*London Medical Recorder*, Nov. 20) has successfully treated five cases of chronic urticaria by the administration of iodide of potassium, four of the cases having been rebellious to all the measures usually employed in this disease. The fifth case was one of acute urticaria of a few days' duration. None of the patients were syphilitic and all were rapidly cured. In one case which had lasted for four months the intolerable itching disappeared on the second day of treatment, and a complete cure was obtained after two and a half drachms of the iodide had been administered. In two other cases, one of two years' and the other of six years' duration, the effect of the iodide was equally good, cure following the administration of six and eight drachms respectively. (Medical News, Dec. 13, p. 633.)

VACCINAL ERUPTIONS.—Recommendations for Prevention.

1. That pure calf lymph should be used when possible.

2. That it is desirable that vaccination should be performed in children not later than six weeks after birth.

3. That strict antiseptic and protective treatment should be carried out immediately the vesicles have developed.

4. That the cases should be seen by the vaccinator until the wounds are healed.

5. That eczema, psoriasis, and other skin diseases should be treated immediately they appear.

The following questions need further elucidation: (1) Is there such a disease as *vaccine generalisée*, due to blood infection, or are all secondary vesicles, following vaccination, produced by external inoculation? (2) Are the general evanescent eruptions, roseola, &c., following vaccination, caused by specific poison, or are they due to a foreign body in the blood acting mechanically (Behrend)? (3) Is it possible to transmit syphilis, during the latent period, by means of vaccination? (4) How is the occurrence of such apparently different skin affections as eczema, psoriasis, urticaria, pemphigus, &c., following vaccination, to be explained? (5) Is there any reason, so far as the protective influence of vaccination is concerned, why the vesicles should not be treated antiseptically, after the eighth day, so as to prevent the risk of accidental local inoculations? (Mr. Malcolm Morris, British Med. Journal, Nov. 29, 1890, p. 1231. See also article at page 357 of this volume.)

AFFECTIONS OF THE EYE AND EAR.

CATARACT.—Some Points in its Development.

At the Ophthalmological Society, on Dec. 11, 1890, Mr. W. A. Brailey read a paper in which he said that excluding the congenital and zonular forms, and also the cataracts secondary to other causes; whether local, as for example, glaucoma or iritis; or general, as diabetes, 7 per cent. of the total cases seen in private practice were found to have some degree of opacity of the lens; but only one on the average out of these seven patients had his cataract sufficiently advanced to justify the operation of extraction. From examination of the records of all patients with immature cataract that had been re-examined within the last two years, it was found that 45 per cent. of them remained absolutely unchanged for the worse; the intervals between examination and re-examination varying between three months and eight years. Four other cases had even got slightly better as regards vision, thus making 58 per cent. in which the sight had not deteriorated. Twenty-three per cent. had got decidedly worse, inclusive of 4 cases (13 per cent.) in which the cataract was sufficiently advanced to justify removal under ordinary circumstances. The slight improvement of vision in 13 per cent. of the cases was attributed to the hygienic measures adopted with regard to the use of the eyes. It was observed that the cataracts which had remained stationary or improved were mainly of the cortical variety, as shown by the presence of peripheral striæ or fissures in the lens, whereas those getting slowly and steadily worse were mainly nuclear. Other differences were found between the two groups since the cortical variety was attended, in about two-thirds of the cases seen, both at its onset and for long afterwards, by irritative symptoms, such as conjunctivitis, photophobia, lachrymation, slight redness of the optic discs, and by aching in the eyes and head, especially on use of the eyes. There was often also a slight increase in the refraction, and some augmentation of the power of accommodation, with occasionally slight spasm of accommodation. Finally it was suggested that while the senile nuclear cataract was a degenerative change, the cortical exhibited often the characters of an inflammation. (British Med. Journal, Dec. 27, 1890, p. 1475.)

DIABETIC RETINITIS.

In the *Deutsche Medicinische Wochenschrift*, Nos. 51 and 52, 1890, Dr. J. Hirschberg publishes the results of his investigations on the affections of the retina which occur in connection with diabetes mellitus. There are three chief forms: (1) A peculiarly characteristic inflammation attacking the central region of the retina, accompanied by small bright spots, and generally also by minute hemorrhages; (2) hemorrhages into the retina, followed by inflam-

matory and degenerative changes; (3) a rarer form of inflammation with degenerative changes. The connection of this condition with diabetes has yet further to be investigated. Inflammation of the retina occurs in patients of middle age, or in those more advanced in life who have had sugar in the urine for some considerable period. It generally affects both eyes, and the earliest symptoms are bright specks appearing before the eyes, difficulty in reading, and general indistinctness in viewing small objects. The acuity of vision is therefore diminished, but the field of vision is normal, although dark spots often occur in the centre of it. When the fundus is examined by the ophthalmoscope groups of small white shining spots are seen between the superior and inferior branches of the central artery, and others are seen close to the optic disc, being most numerous on its inner side. These spots gradually grow larger and form narrow streaks or curves, but star-shaped collections are never seen. No pigmentation occurs. Minute hemorrhagic points and streaks are observed surrounding the bright spots just referred to. The complete escape of the optic disc is remarkable, as is also the absence of any considerable cloudiness of the retina, or any very marked changes in the vessels. In this respect diabetic retinitis differs from the albuminuric form. The former is an exceedingly serious condition, as there is little probability that the disturbances of vision will disappear, and it also denotes that the primary disease (diabetes) is severe and deeply rooted. Spontaneous hemorrhages in the retina occur, being due to changes in the vessels, as atheroma is a frequent consequence of diabetes. Small round patches of hemorrhage are then seen, if attaining any size, being accompanied with cloudiness of the vitreous, hemorrhagic glaucoma, and hemorrhagic infarcts in the retina. These hemorrhagic affections of the retina are less characteristic of those occurring exclusively with diabetes as those described above, but the prognosis is even more grave, not only as regards the length for which sight may be prolonged, but also in reference to the time the patient will probably live. (Lancet, March 28, 1891, p. 728.)

DIPHTHERITIC PARALYSIS OF THE EXTERNAL RECTI.

At the Ophthalmological Society, on Dec. 11, 1890, Mr. A. Stanford Morton read notes of four cases of Paralysis of the External Recti due to the poison of diphtheria. Three of these patients came under his observation during the last ten months, and the fourth was a patient of Mr. Tay in 1876. They all complained of somewhat similar symptoms, such as "crossing" of the eyes and "seeing double," together with more or less defective sight, weakness of the limbs and staggering gait. From a study of the cases it appeared that the paralysis of the external recti came on in from four to seven weeks after the sore-throat. Its shortest duration

was four weeks, and in one case it is still in existence, having been present twenty-six weeks. In addition to the paralysis of the external recti there was in one case defective action of the superior and internal recti. The pupils acted well to light and convergence in all the cases. The accommodation was affected in three of the cases, being absolutely paralysed in one. Loss of the patellar-reflex was very marked. The shortest period in which this symptom was recovered from was three months. In two of the cases the reflex was still absent after a period of twenty-six and sixteen weeks respectively. These cases were reported because of their apparent infrequency. (Lancet, Jan. 3, p. 21.)

GRANULAR LIDS.—Method of Application and Results of Ethylate of Soda in.

The lid is everted and the exposed surface dried as thoroughly as possible with absorbent cotton wool, the ethylate is applied by means of a suitable glass rod. The surface is rapidly smeared over with the caustic and the excess is immediately wiped away by dry cotton wool; no water should be used at any time, though the conjunctiva may be previously rendered anæsthetic with cocaine. I have used this method of treatment in over 20 cases of granular ophthalmia. No harm has come either to the lids or cornea in any of the cases, and there has been notable improvement of a greater or lesser degree in all the cases where there has been time to observe the action of the application. The application of the ethylate is attended with no real inconvenience as regards pain at the time or severity of reaction afterwards, and in each case there has been a distinct march of progress towards the final or scar stage of the disease. The scar state produced by the ethylate of soda has the same appearance as we find in the final stage of chronic granular ophthalmia. So far my experience is that this application is of proportionate remedial value to the height of the vascularity. (Dr. M. J. Symonds, Ophthalmic Surgeon to the Adelaide Hospital, Australasian Med. Gazette, Nov. 1890, p. 45.)

MASTOID ANTRUM.—Rules for Tapping.

With reference to tapping the antrum—after a careful examination of all my specimens, I have come to the conclusion that the mastoid antrum may be opened in every case, without wounding the sinus, and without opening the cranial cavity, if a $\frac{1}{4}$-inch drill be used, and sent straight inwards (without inclination backwards or forwards, upwards or downwards) at such a point that the hole it makes shall lie as near as possible to the back of the bony meatus, and its upper border not more than $\frac{1}{12}$ of an inch above the level of a line prolonged backwards from the superior margin of the meatus. The instrument should not be driven in further than $\frac{3}{4}$ of an inch at the most; if it be sent further than this distance there will be a danger—indeed, in a

certain proportion of cases, almost a certainty of wounding the most external part of the labyrinth—viz., the external semicircular canal, which is in some cases not more than 17 mm. from the surface. The antrum will usually be reached at a depth of $\frac{3}{5}$ of an inch. In about 98 per cent. of cases a $\frac{1}{3}$-inch drill might be used, and in a large proportion even a $\frac{1}{2}$-inch instrument; but since it is impossible to tell from the exterior the dangerous cases, the $\frac{1}{4}$-inch size should be used to secure safety in every case. The aperture may be subsequently enlarged with care, if this be thought necessary. (Professor Ambrose Birmingham, M.B., Dublin Med. Journal, Feb. 1891, p. 120.)

MASTOID REGION.—Rule for Avoiding Lateral Sinus in Perforating the.

I would suggest a simple rule for avoiding the lateral sinus in this region—viz., that all deep perforations made here should be in front of a vertical line drawn $\frac{1}{4}$-inch behind the posterior margin of the meatus; and that they should be made with the greatest care. I have specially avoided giving any guides or surface marks except bony points on the skull itself, about which there can be no doubt or uncertainty. The soft parts, such as the various divisions of the ear, &c., are too movable and too variable; they should never be adopted as reliable guides in such a critical corner with such important relations. I might point out, in passing, that the lateral sinus runs down on the mastoid, roughly, about opposite the line of reflection of the skin from the pinna on to the head posteriorly. I merely mention this because sometimes there is an idea held that the sinus lies a considerable distance behind this line. (Professor Birmingham, Dublin Med. Journal, Feb. 1891, p. 121.)

MASTOID DISEASE.—Bezoldt's Form of.

Prof. S. Moos, of Heidelberg, reports four cases of this interesting and important disease (*Archives of Otology*, April–July, 1890). Bezoldt's form of Mastoid disease is that in which the abscess opens in the digital fossa or *inner* surface of the mastoid process. The pus then accumulates beneath the cervical fasciæ, and large, painful, burrowing abscesses occur in the side of the neck (gravitative abscess). The diagnosis may be difficult in the early stages of the disease. "A hard, painful swelling in the retromaxillary fossa, often devoid of redness, may be the only symptom at the commencement, the mastoid process being apparently unchanged, without any infiltration of the overlying integument, and even showing scarcely any sensitiveness to pressure, though usually this is elicited upon percussion. Elevation of temperature may be absent in the early stages or may be transient and insignificant." This form of mastoid disease occurs usually with acute or subacute inflammations in the middle ear, and Moos regards it as the most serious form. (American Journal, Jan. 1891, p. 86.)

PILOCARPINE IN EAR DISEASES.—Its Use and Abuse.

1. The subcutaneous injections of pilocarpine are particularly indicated in recent affections of the labyrinth, be they of a syphilitic nature or not. In protracted diseases of the labyrinth these injections, if tried, must be abandoned if no improvement results after from ten to fifteen injections. 2. The subcutaneous injections of pilocarpine are but rarely employed in otitis media acuta, where the cavum tympani contains hardened exudative products, which resist reabsorption; moreover, in panotitis gemina diphtheritica, or in other diseases produced by infection. 3. The subcutaneous injections of pilocarpine are decidedly contraindicated in cases of dry sclerotic catarrhs of the middle ear. 4. Injections of several drops of a 2 per cent. solution of muriated pilocarpine through the catheter into the tympanic cavity are beneficial in some cases of catarrhs connected with swelling and a slight secretion of the mucous membrane of the middle ear, continued from one to three weeks alternately, with inflations of air by Politzer's procedure. The purpose of the present communication is to reduce to a just measure the therapeutic value of the subcutaneous injection of muriated pilocarpine in diseases of the ear, and to draw attention to the frequent abuse which has been made of this remedy for some time past. (Dr. Adam Politzer, Vienna University, p. 363.)

SEVERE SENILE ENTROPION.—Operation for.

Dr. Argyll Robertson reports a case in which repeated removals of portions of skin from the lower lid failed to cure. On Oct. 5th, 1890, he operated once more by injecting cocain and then dividing the whole thickness of the lid by a vertical incision, about 4 mm. from the outer canthus. The incision was carried through the whole extent of the lower lid. The edges of the incision at once sprung apart, and the lid was readily replaced into its natural position. To prevent recurrence of inversion a horizontal elliptical fold of skin was removed. Both lower lids were treated in this way. Horse-hair sutures were applied to the horizontal wounds, but the vertical incisions were allowed to heal by granulation. Two days later there was a slight inversion of the inner extremity of the right lower lid, to remedy which an additional small fold of skin was removed. On the 10th of October the lids were found in their proper position and the stitches were removed. A shallow notch in the edge of the lid indicated the position of the vertical incision, causing a scarcely perceptible disfigurement. The corneæ later steadily cleared, and the injection and discharge almost entirely disappeared; the edges of the lids were in perfect position, and (Nov. 11th) careful examination was necessary to reveal the situations of the incisions. In the foregoing case the persistent recurrence of the entropion after operations that frequently suffice to effect a radical cure can only be explained by an abnormal curva-

ture of the cartilage, the existence of which condition was further evinced by the springing apart of the edges of the vertical incision. The operation is very similar to one introduced nearly twenty years ago by Stellwag von Carion, which has, however, scarcely been adopted in this country. (Edinburgh Med. Jour., Dec. p. 498.)

SUPPURATION OF THE ATTIC TYMPANI AND PERFORATION IN SHRAPNELL'S MEMBRANE.

Dr. B. Alexander Randall, of Philadelphia, contributed a very interesting paper on this important subject to a recent number of the *Medical News* (Sept. 27, 1890). "The successful treatment of these cases is, of course, the special end of their study, and the questions of the origin, frequency, and seriousness of the lesions are of fundamental importance." If ear disease is not a large element in the practice of the physician, "it makes up for it by its serious importance." "It is not without cause that suppurations of the ear are bars to life insurance; and more often in these than in any others do we have caries just where the meninges are nearest." In his investigations, Dr. Randall has included cases of perforation in Shrapnell's membrane, with and without concomitant perforations in the membrana tensa—the portion below the line of the folds of the drum-membrane. As a rule, those without any concomitant perforation in the membrana tensa are (in our experience) the most serious, and are those which demand excision of the membrana tympani and the malleus, as they are indications of caries in the head of the malleus, and cannot be cured in any other way. Dr. Randall, however, prefers to rely on other methods, like injections into the attic, as he has not found excision of much value. (American Journal, Feb. 1891, p. 199.)

SYPHILITIC AFFECTIONS.

GONORRHŒA.—Use of Ichthyol in.

Köster (*Wiener medizinische Presse*, Nov. 23, 1890) writes enthusiastically of the use of a one-per-cent. solution of ammonium sulphichthyolate in gonorrhœa. He has used it in three cases of gonorrhœa in men and in one case of gonorrhœal cystitis in a woman. In the cases of gonorrhœa he employed injections of the solution three times daily. On the second day of treatment the painful micturition and the painful nocturnal erections disappeared. The discharge ceased permanently in from four to twenty days. In the case of cystitis, in which the symptoms were severe, four and one-half ounces of the solution were injected twice daily for eight days by means of an irrigator, the solution being retained in the bladder for five minutes, and then permitted to escape through the urethra. After the second day of treatment pus disappeared from the urine and there was no longer severe pain. (Med. News, Dec. 27, p. 690.)

PYOCTANIN IN SYPHILITIC AFFECTIONS.

Dr. Oscar V. Petersen, of St. Petersburg, in *Vratch*, 1890, says:—Our therapeutic armamentarium has lately received two additions which will prove, to all appearance, of a first-rate practical importance; they are *Pyoxtaninum* ("pus-destroyer") *cæruleum* and *P. aureum*, some aniline dyes patented by Professor Stilling and Dr. Merk, both of the substances being unusually powerful and, at the same time, seemingly innocuous antiseptic and "anti-pus" agents (vide *Wiener klinische Wochenschrift*, 1890, May 15). To verify the discoverer's (Prof. Stilling) and patentees' eulogistic statements, Dr. Petersen, of St. Petersburg, undertook clinical experiments on forty-eight patients, suffering from soft chancres (20), hard chancres (8), gummous ozæna (4), gummous ulcers of hard palate, pharynx, leg, buttock (5), syphilitic ecthyma, syphilitic keratitis, &c. The remedies were employed in the shape of *a.* pencil made of pure blue or yellow pyoxtanin; *b.* mixtures for powdering prepared of pyoxtaninum and talc (2 to 1,000); *c.* aqueous solutions of pyoxtaninum (1 to 2,000, 1,000-100). The author arrives at the following conclusions: 1. Both blue and yellow pyoxtaninum, in any form, undoubtedly develop powerful antiseptic effects; being by no means inferior to iodoform, they offer the advantage of being quite odourless. 2. They give excellent results both in soft chancres and gummous ulcers, as well as in syphilitic eye diseases. 3. They do not cause any local pain or irritation, and, in fact, appear to be free from any taste or unpleasant accessory effects. 4. The drugs fairly promise to become as widely popular as cocaine. 5. The dyes, however, easily stain the skin and clothes, hence they should not be given the patient himself. The practitioner may easily remove such stains from his clothes by means of dilute hydrochloric or nitric acid. (Dr. Idelson's Précis, British Journal of Dermatology, Nov. 1890, p. 347.)

VACCINAL SYPHILIS.—Its Inoculation from Apparently Healthy Vaccinifers.

In reference to the possibility of conveying syphilis from a vaccinifer who did not reveal the taint by any visible symptom or any degree of cachexia, Mr. Hutchinson felt bound in honesty to say that he felt sure of it. No surgeon in his senses would ever vaccinate from a child which showed obvious symptoms. The fact was, however, that a certain number of syphilitic infants looked perfectly healthy whilst yet very efficiently contagious. There was no use and much danger in denying this important clinical fact. It had its parallel in the fact that many subjects of acquired syphilis passed through the secondary stage without a single symptom. The vaccinifer recorded in his first series of cases published in the *Medico-Chirurgical Transactions*, was pronounced by the station operator to be a good specimen of a healthy child, and was taken by a very judicious and able practi-

tioner to a private house for the purpose of arm to arm vaccination. Fourteen persons acquired syphilis, yet on the most careful examination of the infant afterwards, nothing could be found of a suspicious nature, except a little sore at the anus, and some, including Sir John Simon, doubted whether it could be considered proof of taint. In the second series of cases, the vaccinifer did not present a single visible symptom. Had it done so it would have been rejected at once by the vaccinator, a very experienced and very careful man. It was absurd to assert that inherited syphilis was always to be detected, and it was a cruel injustice to imply that all accidents had been the result of carelessness. Very fortunately it would appear to be the fact that but few syphilitic infants had the virus in the vaccination lymph. No doubt many had been used as vaccinifers, and very few accidents had occurred. Dr. Cory's experiments supported this view, for he, although using lymph from those who were known to be syphilitic, failed on several occasions, although at last by perseverance he unfortunately succeeded. No good could possibly come from concealing from themselves or others, the real facts as regards the danger of syphilis from vaccination. Their only safety lay in their recognition. Not only must the careful vaccinator examine as to the state of health of the child he proposed to take lymph from, but he should know the parents, and would do wisely to avoid as a rule all first-born children. The cheering part of the story was that these accidents were very infrequent. Since the publication of his second series of cases no single case of vaccination-syphilis had come under his observation, and none had, he believed, been published in English literature. The officers of the vaccination department were able to assure them that during twenty years of close attention to the matter, they had not found any amongst those vaccinated at their offices. When it was remembered that during these periods a whole army of anti-vaccinators had been ceaselessly on the look out for facts by the help of which they might discredit vaccination, they might feel sure that in English practice during the last quarter of a century, at least, the communication of syphilis by vaccination had been infinitesimally small in amount. Mr. Hutchinson would be pleased to believe that the publicity given to the cases which came under his notice twelve years ago had been the means of causing increased care, and of thus helping towards the result of an entire absence of such cases during the last ten. (Mr. Jonathan Hutchinson, British Medical Journal, Nov. 29, 1890, p. 1234.)

OBSTETRICS AND GYNÆCOLOGY.

ABDOMINAL SECTION.—Elevation of the Pelvis in.

Dr. Leopold (*Centralblatt für Gynækologie*) has performed all his abdominal sections recently with the patients' hips elevated. The patient is placed horizontally on the operating-table, with her hips and legs over a flap. When she has been brought under the influence of the anæsthetic the flap is raised, and is kept at the desired angle by the same contrivance as in an ordinary bed-rest. The intestines then fall anatomically toward the diaphragm, the pelvis becoming free of them. No troublesome prolapse of the gut through the abdominal wound during imperfect narcosis can occur. A large flat sponge is placed over the intestines to guard them, and thus eventration of some coils of gut in order to explore puzzling conditions in the pelvis becomes needless. The pelvic organs can be seen with ease; the promontory of the sacrum comes into view. The sewing up of a large peritoneal wound after removal of a uterine fibroid can be managed with comparative ease. The bystanders can see all the area of operation. As the operator can get so deep a view of the pelvis, there is no fear of clots or pools of pus and sanies being left behind. The ureters and other structures passing over the brim of the pelvis can be seen; this is often impossible when the patient lies flat on her back. The flap is lowered when the superficial sutures are applied to the abdominal wound. The elevation of the pelvis did not prove prejudicial to patients. Dr. Leopold finds so many advantages in this position that he always operates in severe cases after the new fashion, which was originally recommended by Trendelenburg. The patient's right thigh is a support for the operator when necessary. Sixty-four cases have been operated upon this way. (N.Y. Medical Journal, Jan. 31, 1891, p. 137.)

CÆSAREAN SECTION AND PORRO'S OPERATION.

The mortality of the Cæsarean section since the use of the uterine suture and antiseptics has been so much reduced, especially by Sänger and Leopold, that previous comparisons with Porro's "utero-ovarian amputation completing Cæsarean section" (as Porro himself defined his operation) must be corrected. Before 1865 Cæsarean section was a very fatal operation, few children were saved and fewer mothers survived. Porro's amputation certainly lowered the mortality, but after 152 cases had been carefully recorded the mortality was 56 per cent. of the mothers. Of the children 96 were living, and it was said with satisfaction that 162 lives had been saved by 152 operations. On the table before you are the uterus, both ovaries, and a uterine fibroma, which weighed nine pounds, which I removed after delivering a living child at full term in May, 1887, from a lady, aged 37. She and the child are still quite well.

Mr. Scattergood, of Leeds, wrote to me last week saying: "She does not suffer the slightest inconvenience as the result of the operation, indeed feels much better now than she did some years ago. Her boy is also very well." This case, and the mortality of the Cæsarean section up to that time, led me to a conclusion favourable to Porro, but more recent statistics of the Cæsarean section in Germany teach us to prefer the more conservative operation in cases where there is no uterine tumour. If there be any considerable tumour it would almost always be preferable to remove it with the uterus, but in simpler cases to be content with Cæsarean section as perfected by Sänger and Leopold, which has recently given almost as good results as average ovariotomy—the latest returns of the work of a few experienced operators giving a mortality of only 5 per cent. Surely this is a result of which modern abdominal surgery may be justly proud. (Sir T. Spencer Wells, British Med. Journal, Dec. 27, 1890, p. 1467.)

DYSMENORRHŒA.—The Ethics of its Treatment.

Dr. Champneys concludes his Harveian Lectures with the following words:—"The patients are often young unmarried women. In such, unless the health is seriously suffering, we should try to dispense with a local examination, and, if it is necessary, make it by the rectum, at least in the first instance. By this route a practitioner used to pelvic examination will be able to make a very good exploration of the pelvis, unless the patient is rigid, which would equally prejudice a vaginal examination. To make the first vaginal examination in a young virgin may occasionally be necessary, but it is most unpleasant. It is not to be done without a due feeling of necessity. To illustrate a mode of practice as far as possible removed from that which would be generally approved by English gentlemen, I will summarise the treatment recommended and habitually practised by the writer of a recent article. The patient is a girl of seventeen. After general treatment has been tried and failed, hot vaginal douches are given for some days before each menstruation. If this is of no avail a vaginal examination is made, and the vagina thoroughly stretched under ether to facilitate further manipulations. This is followed by the insertion of medicated tampons twice a week, to enable the practitioner to move the uterus freely. Then the sound is passed and the tampons are resumed for two or three weeks, or even from six to eight weeks. This is followed by dilatation of the cervix, repeated two or three times between two periods. When the uterus is small electricity is used, and persisted in till the uterus develops. I cannot do justice to such advice, and can only express my opinion that all the dysmenorrhœa endured by "suffering woman" since the foundation of the world is preferable to such treatment, even if scientifically correct, instead of being, as I have endeavoured to show, founded on unsupported theory and on false logic. Lastly, I would say it

seems to me that the profession ought to make up its mind on the subject of dysmenorrhœa. I have endeavoured to state the facts plainly, and I have given references to enable those who doubt to read for themselves. We do not take a worthy position if we talk cynically of different schools or sets of opinions. We are not living in days when the facts of anatomy were stated on the authority of Hippocrates or Galen, but in days when verification is possible for most if not for all. Opinions and creeds matter only to their owners as long as they remain merely opinions and creeds, but when transformed into action they become serious. The local treatment of diseases of women is only justifiable when it is necessary. Whether it is necessary or not, or what is necessary, depends upon the question whether this view or that view is correct. Let the subject be our sister, our wife, or our daughter, and we at once see that it is of the utmost importance that those who are to treat them should be correctly informed. When the matter stands so that more recent investigation shows or claims to show that older theories entailing a great amount of local treatment are erroneous, it seems to me incumbent on English gentlemen to do their best to find out what the facts really are. It has been with a view to making this course easier that I have ventured to address you on the subject of painful menstruation." (Lancet, Dec. 27, p. 1374.)

HYSTEROPEXY.—New Method of Performing.

Dr. Laroyenne (*Progrès Médical*, July 5th, 1890) performs hysteropexy in the following manner. A sound is passed into the uterus, and that organ is pushed up and pressed against the abdominal wall. An incision, about three inches in length, is made through the median line, well upon the fundus and anterior aspect of the uterus; the peritoneum is opened. A long needle, mounted on a handle, is passed through the muscular tissue of the abdominal wall, and through the peritoneum half an inch from its cut border, and is then made to transfix half an inch of the anterior aspect of the uterus at the level of the fundus, passing through the peritoneum and muscular tissue of the abdominal wall on the side opposite the point of introduction. The needle is left in place, and two or three more needles are passed, in the same manner, lower down at intervals of half an inch. The needles are then threaded with catgut. The uppermost suture is tied after the withdrawal of its needle. Then the next needle is withdrawn and its catgut suture tied. The process is repeated with the remaining needles and sutures. In this manner the uterus is kept steadily forwards till secured by all the sutures. The superficial wound is closed, and a plug of iodoform gauze is passed into the vagina, serving as a provisional pessary. The uterus should not be pulled upwards with the hand; M. Laroyenne's proceeding avoids this objectionable practice. The peritoneum must be opened; Caneva's extraperitoneal proceeding has been performed

with safety and precision, but the omentum is often in the way, and an intestinal adhesion to the front of the uterus existed in one case (Blanc, of St. Etienne). If the uterus can be very clearly seen through the peritoneum, the latter may be left undivided if it be only to avoid troublesome prolapse of intestine. (Supp. British Medical Journal, Oct. 11, p. 11.)

INTRA-UTERINE TAMPONMENT.

In a communication read before the International Congress at Berlin, in August last (*Archives de Tocologie*, Dec. 1890) Dr. Auvard, of Paris, endorses Dührsen's method of tamponing the cavity of the uterus for the arrest of hemorrhage arising from uterine atony. He claims that it is attended with but slight danger, and that its efficacy is generally recognised by the accoucheurs who have employed it. It should, however, not be employed until intra-uterine injections of hot water and subcutaneous injections of ergot have proved inefficient. The method of procedure is as follows: The woman being placed across the bed (a vaginal douche having been previously given), with the aid of volsella forceps the anterior lip of the cervix is seized and brought down to the orifice of the vulva, whilst at the same time an assistant presses upon the fundus of the uterus to favour its descent. The cervix is then inspected to be certain that it is not the source of an arterial hemorrhage, in which case a ligature should be placed around the bleeding vessel. The cervix being held at the vulva, the uterine cavity is abundantly flooded to favour the escape of the clots which it contains, and which should be, in difficult cases, removed with the fingers; this manœuvre is easy if care is taken to press simultaneously upon the fundus of the uterus. When the uterine cavity is free, the operator carries into it, by the aid of forceps or the fingers, the end of a strip of iodoform or simple gauze (the latter should be previously soaked in boiling water for some minutes, or in a sublimate solution of 1 to 1,000, and then carefully squeezed dry). The forceps, or fingers, are then withdrawn and a new portion of the gauze inserted, and this is repeated until the cavity of the uterus is filled. Before detaching the volsella forceps, the cervical canal should also be filled. Then, the cervix being freed, as much gauze as possible is introduced into the vagina; in a word, not only an intra-uterine tamponment is made, but also an utero-vaginal tamponment, which is surer. This tampon should be left in place twelve hours, a sufficient time for the hemorrhage to cease. Should the hemorrhage be very grave, the procedure is somewhat different. The hand should at once be introduced into the uterus, the woman having been placed in the obstetrical position. Then, abandoning the fundus of the uterus to the care of an assistant, after having emptied the cavity of the uterus of its contents, the free end of the strip of gauze is passed up into the cavity by the aid of forceps, or by the fingers of the left hand, and grasped by the fingers of the hand already within

the cavity of the uterus, and carried to the fundus; successive portions are thus introduced until the cavity is filled, when the utero-vaginal tamponment is performed as already stated. If properly done this method of arresting uterine hemorrhage is very efficient, and, with ordinary care, is not attended with any bad results. (Medical News, Jan. 24, 1891, p. 110.)

LEUKÆMIA.—Its Influence upon Pregnancy.

From the observations now on record the following conclusions seem to be justified: 1. A leukæmic mother may go to full term and bear a healthy child. 2. Leukæmia tends to bring on labour prematurely or reduce the patient to such a critical state that the premature induction of labour becomes advisable. 3. Leukæmia in pregnant women tends to run a rapidly fatal course; yet occasionally its progress may be slow, though progressive. 4. During the first three or four months of gestation, a leukæmic patient may not suffer much inconvenience; but as intra-abdominal tension increases, her distress becomes greater, graver symptoms rapidly develop, and the patient is quickly reduced to a pitiable and dangerous condition. 5. Leukæmia does not prevent the occurrence of pregnancy, nor does it seem to limit its frequency. 6. As regards the relative characters of blood in the maternal, fœtal, and placental circulation, later observations confirm those made on a previous occasion. 7. While epistaxis, hæmatemesis, and melæna may occur frequently during the progress of gestation, there may be no uterine hemorrhage at the time of labour or during the puerperium. 8. Menstruation may be affected. 9. Leukæmia seems sometimes to have an injurious effect upon lactation. (Prof. J. Chalmers Cameron, McGill University, American Journal, Nov. 1890, p. 483.)

OVARIES AND TUBES.—Results of Removal of.

Kelly (*Johns Hopkins Hospital Bulletin*, 1890) summarizes from his experience in ninety-six cases of salpingo-oöphorectomy as follows: A small percentage of the patients were restored to perfect health within a few weeks after operation, a larger number were eventually restored to comparative health, and a few were no better subjectively after the operation. He adds the following suggestions for avoiding some of the ultimate bad results of laparotomy: 1, as the ligature often remains as a septic focus, it should not be passed through the pedicle of a pyosalpinx as long as there is pus in or about the stump; 2, a large-sized drainage tube should be used, and should be dispensed with as early as possible; 3, the operator should work deliberately and carefully, handling the intestines as little as possible; 4, the specimen should be carefully inspected before the abdomen is closed, with the purpose of determining if any portion of the ovary or tube has been left behind; 5, the patient ought to remain longer in the hospital, and should be kept under observation for months after the operation. (American Journal, Feb. 1891, p. 212.)

PESSARY.—The Intra-Uterine Stem Pessary.

The intra-uterine stem pessary seems to me to fall under entire reprobation. It may be from my own want of skill, or care, or both; but in my hands it has done infinitely more harm than ever it has done good. It does occasionally occur that pregnancy has followed its use, that displacement or dysmenorrhœa has been occasionally cured, and in the hands of one alive to their risks it may sometimes be used with safety; but I only wish now to express my opinion over a very considerable experience, that its use, whether in dysmenorrhœa or displacement, is, as a rule, to be deprecated, and in the hands of the inexperienced to be entirely barred. My personal knowledge supplies me with the records of women who have been permanently maimed; and to very few indeed who have benefited by their use. Dysmenorrhœa and amenorrhœa, and such like, for which such instruments were devised and employed, are in the main not due to uterine conditions at all, but to other pathological conditions, either partly or altogether beyond the uterus itself. (Dr. Halliday Croom, Edinburgh Medical Journal, Feb. 1891, p. 709.)

PREGNANCY.—Metrostaxis in.

At the Leeds and West Riding Medico-Chirurgical Society, on March 6, 1891, Dr. J. B. Hellier read a paper on this subject, confining his attention to those cases where the hemorrhage was not the result of abortion or premature labour. This was predisposed to (1) by the physiological increase in vascularity so characteristic of pregnancy; (2) by the presence of any disease in the uterine tissues, as, for instance, a granular condition of the interior of the cervix or body, the existence of a pelvic tumour, and, *a fortiori*, cancer. Some of the cases which showed an irregular or continuous oozing found sufficient explanation in these two conditions. (3) In other cases the persistence of the menstrual impulse was an essential factor, and, under certain conditions, the suspension of the menstrual function during pregnancy was apt to be imperfect, and, in brief, it seemed that if pregnancy occurred in a diseased womb, or under abnormal conditions, there was a tendency to metrostaxis during gestation, which might be irregular or periodic, and which, if it were not true menstruation, was at least very liable to be mistaken for it, and so lead to important errors in diagnosis. The frequency with which ectopic gestation was overlooked in its earlier stages, owing to the occurrence of more or less periodic metrostaxis, was now well recognised. Dr. Hellier knew of a case in which the coexistence of pregnancy with fibroid tumour had been overlooked for a similar reason. He then quoted several cases where more or less uterine disease had existed before pregnancy, and where, during gestation, there had been marked metrostaxis—sometimes showing a distinct periodicity. In one case the patient asserted that she had "menstruated" regularly every month throughout pregnancy, the periods lasting as much as nine days. The moral was that the existence of

metrostaxis, or the fact that a patient declared herself "regular," must never, by itself, lead them, in the diagnosis of abdominal tumour, to exclude the possibility of ectopic gestation or of the coexistence of pregnancy with another tumour, or the existence of an ordinary pregnancy, because the metrostaxis might really be a symptom of it. As to treatment, he recommended rest, a trial of hamamelis, and local treatment to granular cervix in certain cases. (British Medical Journal, March 21, 1891, p. 648.)

PURSE-STRING SUTURE (THE).—Its Use in Complete Rupture of the Perineum.

At the Obstetrical Society, on Dec. 3, 1890, Dr. Percy Boulton read a paper on this subject. The paper describes an operation which the author had employed successfully in seventy-three cases of complete rupture of the perineum. The method of using the purse-string suture was explained, and it was claimed that by means of it the sphincter ani was more perfectly restored than by other methods of operating. A series of diagrams accompanied the paper. The so-called "perineal body" was formed by the elastic tissue which constituted the attachments of the posterior part of the sphincter vaginæ, together with that of the two transversales perinei muscles and the anterior attachment of the sphincter ani. The loss of these attachments by complete rupture was shown. The posterior vaginal wall had shortened so as to form a thick tongue while the sphincter ani and transversales perinei had retracted behind the rectum, and the sphincter was seen there in nearly a straight line forming numerous rugæ. Another diagram represented the lines of incision necessary for repair. The tongue was dissected up. The ends of the sphincter were laid bare and these points were connected by incisions. The tissues were denuded. Another diagram showed the rectal tear closed by two gut sutures tied in the bowel. The purse-string suture was seen passed through the ends of the exposed sphincter ani and up the recto-vaginal wall as far as the base of the tongue. The purse string was tied, showing the circle of the sphincter perfectly restored, and the three sutures were in place for closing the perineum. (British Medical Journal, Dec. 20, 1890, p. 1431.)

TUBERCULOUS ULCERATION OF THE PORTIO VAGINALIS.

Haidenthaller (*Wiener klin. Wochenschrift*) describes and figures a case of this rare affection, which possessed more than usual interest, since in all the other cases that have been reported the tubercles were of the miliary variety. The patient was twenty-nine years of age, and had borne three children, one of whom had died of tuberculosis of the intestines. Her father died of phthisis, and she had had a "catarrh" for several years. Three years and a half before coming under observation she had aborted at the second month, and suffered from metrorrhagia for eight months after, the hemorrhage

ceasing after curetting. Two months later she began to have a sanguineous discharge, which later became purulent and foul-smelling. She emaciated rapidly, and complained of pains in the abdomen with cramps in the lower limbs. On examination well-marked evidences of pulmonary trouble were found; the abdomen was tympanitic and so tender that thorough palpation was impossible. The urine, as well as the sputum, contained tubercle bacilli. Vaginal examination showed that the uterus was small, retroflexed and adherent, while the left tube was enlarged to the size of the little finger. On the anterior lip of the cervix there was a superficial ulcer as large as a quarter of a dollar. A diagnosis was made of tuberculosis of the lungs, tube, corpus and cervix uteri, with probable tuberculous disease of the intestines. At the autopsy this was entirely confirmed; the entire endometrium was studded with cheesy nodules, as well as the kidneys, ureters, and bladder. It is probable that the primary infection in the genital tract was situated in the tube, and that the lacerated and eroded cervix became infected through the discharge from the interior of the uterus, which began after the abortion. There was a possibility that infection had been introduced by the curette. (American Journal, Dec. 1890, p. 645.)

VAGINAL HYSTERECTOMY FOR CANCER.

Flaischler (*Deutsche med. Wochenschrift*) reports twenty cases of total extirpation operated upon in the past five years, with three deaths from sepsis. Seven patients had since died from the disease, and eleven had no recurrence, of whom six had been operated upon at least three years before. He insists upon greater care in the selection of cases, not so much because of the immediate as of the remote results of the operation. Only those are suitable for the radical operation in which there is strong probability that the cure will be permanent. It is not justifiable to remove every uterus which can be easily drawn downward when there is suspicious induration in the broad ligaments. Sometimes it is impossible to determine positively, even under ether, whether the perimetric tissues are involved or not, or to decide between malignant and simple inflammatory indurations in the broad ligaments. Under these circumstances it is better to give the patient the benefit of the doubt. According to Volkmann, a patient can only be regarded as cured when three years have elapsed after the operation without recurrence, while Fritsch places the limit at six years. Tanner believes that while a patient may be said to be cured, it is only a question of a few or many years before the disease returns. Flaischler regards the latter view as too pessimistic, although sufficient evidence has not yet been accumulated to decide positively against it. He thinks that total extirpation is no more dangerous than high amputation (!); the latter operation should be regarded as a transitional step in the development of the former, and is not to be compared with it. (American Journal, Nov. 1890, p. 545.)

Medicine.

GENERAL MEDICINE AND THERAPEUTICS.

Art. 1.—ON THE CHARACTERISTIC ORGANISM OF CANCER.

By William Russell, M.D., F.R.C.P.E., Pathologist to the Royal Infirmary, Edinburgh.

Dr. Russell (in an address read before the Pathological Society of London, on Dec. 2, 1890,) stated that he had been occupied for some years in tracing the mode of growth of cancer in different organs. By this study he hoped to map out the steps of the process, and by learning the manner of its growth to perhaps obtain an insight into the factors, determining the departure of the tissues from their normal behaviour and arrangements. He had found appearances which he could not fit into modes of cell growth and nuclear proliferation, and these had so puzzled him in one case that he asked his pathological assistant, Mr. W. F. Robertson, to experiment on it with every possible combination of stains with a view to the possible differentiation of some of these structures. His attempts were soon successful by the following method: 1. Saturated solution of fuchsine in a 2 per cent. carbolic acid in water. 2. One per cent. solution of iodine green (Grüber's) in a 2 per cent. carbolic acid in water. Place section in water. Then stain in fuchsine for ten minutes or longer; wash for a few minutes in water. Then wash for half a minute in absolute alcohol. From this put the section into the solution of iodine green, and allow it to remain well spread out for five minutes. From this rapidly dehydrate in absolute alcohol, pass through oil of cloves, and mount in balsam. By this method it was found that certain structures stained a brilliant purplish-red, while the tissues stained green. Similar bodies were found in a number of cancers then examined, and these, for laboratory purposes, were called "fuchsine bodies."

With this discovery all kinds of possible errors suggested themselves. That they were not accidental impurities in material, bottles, or stains was shown by the fact that tissues from the same bottles and cut at the same time gave no indication of this. That they were not the nuclei of tissue cells in exaggerated reproductive activity was tested by the cells in organising inflammation of serous membranes not giving the reaction, nor the cells in tubercle, in typhoid lesion, in inflammatory affections, or in the organs of an embryo. That they were not globes of some degenerative substance was proved by the examination of a great

variety of tissues showing different varieties of degeneration. Further, they were not present in the sarcomata, nor in simple tumours, such as fibromata, papillomata, myomata, &c., nor in venereal warts and condylomata, nor in primary syphilitic sores. Sections of a tumour labelled adenoma of the mamma, and rich in adenomatous structures, and a gumma of the dura mater showed the bodies, but of the history of these cases he was ignorant. Another syphilitic case which had defied treatment, and in which there was extensive destructive lesion of the fauces and larynx and the bones of the vertebra behind the fauces, showed a few fuchsine bodies in sections of the larynx. Altogether tissues had been examined from fifty to sixty different cases selected with the purpose of subjecting the positive observations to the severest possible tests. The result was that fuchsine bodies were found in one case of chronic ulcer of the leg, one of tubercular disease of a joint with old sinuses, one of phenomenally severe, destructive, and intractable syphilitic lesion; and in two other cases, of which he had no record, one a case of mammary adenoma, and one a gummatous tumour of the meninges. He indicated possible explanations of these, and that they could not be regarded as sufficient to overthrow the other evidence.

Turning to the positive side of the question, forty-five cases of cancer had been examined, which included malignant epithelial growths of various structure, as epitheliomas of the lips and face, rodent ulcer, scirrhus of the mamma, both primary and recurrent; malignant adenoma of cervical glands, cancers of the stomach, liver, spleen, abdominal glands, supra-renal capsules, uterus, and ovaries. The pathological position of one of these was still uncertain; another was represented by sections dated 1885; in these two no fuchsine bodies were found, but in the remaining forty-three they were present. In individual sections they varied greatly in number, and it was noted that they occurred in special abundance in foci. They might be present in the small-celled infiltration at the margin of the cancer, amongst or in the epithelial cells, in the stroma, or in the lymphatics. As a rule, they occurred in clusters or groups of two, ten, twenty, or more, and they almost always showed a clear space round them. In shape they were perfectly round. The commonest size was 4 μ, but they might be much smaller or larger. Examined by daylight they appeared homogeneous and structureless.

As there seemed to be no escape from regarding these structures as special organisms, which—so far at least as his pathological material was concerned—were practically confined to cancer, the question was, Were they animal or vegetable, and what was their mode of growth and reproduction? To answer this question it was necessary to consider the work which had been done, especially on the Continent, in the study of cancer. He then

referred briefly and in detail to the various papers which had appeared in French and German literature, in which it was contended that an animal parasite had been found in some cases of cancer. Summing this up and excluding molluscum contagiosum, it was found that Albarran, Darier, Thoma, Wickham, and Sjöbring had found in cancer an organism which they described as belonging to the protozoa, while Thoma did not commit himself, and only Wickham and Sjöbring give figures to aid in forming a judgment on their contentions. He next pointed out the characters of the protozoa, more especially the psorospermiæ or coccidiæ, and indicated that according to the authorities these were unicellular organisms forming in their interior psorospermiæ, which in turn developed spores which were usually sickle-shaped bodies, and became free parasites. To meet the necessity of this stage in their life, Sjöbring had figured the spore formation in the cancers he examined. In short, looking at the work on this subject in the concrete, he regarded some of the figures as having nothing whatever to do with foreign organisms, that others were certainly misinterpreted, while some probably represented the organism with which he was dealing.

Returning to the consideration of the fuchsine bodies, they might be studied by the special method of staining given, or by logwood and eosine, or by Gram's method with methyl violet. Each group and most of the isolated individuals were surrounded by a clear area, often having the appearance of being bounded by a definite capsule. In so far as the isolated individuals were concerned one entered an epithelial cell; the protoplasm and the nucleus of which stained with logwood; while the foreign organism lay in a clear area or vacuole in the cell protoplasm, to which there was no true capsule. Both in the epithelial masses and the vacuoles referred to there might in addition be small fuchsine bodies surrounded by a clear space, and bounded by a capsule or limiting structure. Further, it was to be noted that in the vacuoles there might be several fuchsine bodies; while in others the fuchsine body was granular and had lost its characteristic staining reaction, and showed undoubted spores in its interior. In the epithelium it may also be noted that some fuchsine bodies are surrounded by a vacuole, while others are not.

From the foregoing it might be contended that the organism in question was a protozoon, were it not that in sections stained by Gram's method the mode of reproduction is shown quite diagrammatically. The large fuchsine body is seen to give out a small globular body, which increases its distance from the parent body but remains attached to it by a filament; this bud grows and gives off another and a short chain, or other forms may be produced. The small spores could also be seen in the interior of the lymphoid cells, or leucocytes in the infiltrated area, the effect

of this being to clear up the protoplasm of the cell and to produce a clear space or vacuole with a limiting ring. This he thought was the mode of formation of what might be called the free encapsuled organism present amongst epithelial cells or lying in vacuoles. As to the appearances in the interior of epithelial cells, the foreign body at first had no vacuole round it, but ultimately developed one, and this was to be accounted for by its influence upon the surrounding protoplasm leading to its classification. He said that there could be absolutely no doubt that the organism was a fungus which belonged to the sprouting fungi—*Sprosspilze*—of Nägeli; but the proof of this was not to be readily found in every section, for the usual arrangement was in clusters, especially as demonstrable by fuchsine and iodine green method, which he thought acted best when the organism was at a certain stage of its growth.

In conclusion, he said that if the presence of this parasitic fungus in cancer was confirmed by other observers, we had found in it an organism whose nutrition, reproduction, and death in the tissue could hardly be conceived as occurring without producing changes not disproportionate to the anatomical changes present in cancer.—*Lancet, Dec.* 13, 1890, *p.* 1259.

2.—ON URATOSIS AND LITHÆMIA—AND THEIR RELATION TO EACH OTHER.

By Sir William Roberts, M.D., F.R.S.

[The following excerpt is taken from an Address delivered before the Medical Society of London, in the course of which Sir William Roberts proposes the name "*Uratosis*" to designate the precipitation of Crystalline Urates in the tissues and fluids of the body.]

The differences between these two conditions are, I think, important, and deserve, perhaps, more attention than they have hitherto received. In lithæmia the exact state of the uric acid is not precisely known. We are sure that it is not in the free state, because it is chemically impossible for uric acid to subsist in the alkaline blood serum without entering into combination with the bases contained in it; but whether that combination be a quadrurate or a biurate, or a mixture of the two, or sometimes one and sometimes the other, we do not know. These two combinations are strongly contrasted in several respects; the quadrurates are highly soluble in blood serum, and cannot be thrown down therein in the crystalline state, while the biurates are very sparingly soluble in that medium, and are readily thrown down in it in the crystalline form. On the other hand, in uratosis we know exactly what we have to deal with; uratic deposits are composed of crystalline sodium biurate—that, and nothing else. Again, it is an open question whether uric acid dissolved in the blood exercises

any injurious effects at all. It appears not improbable that uric acid is as innocuous when dissolved in the blood as we know it to be when dissolved in the urine. But we do know of a certainty that when uric acid is precipitated in the tissues as crystalline urate it does produce injurious effects. Another distinction between lithæmia and uratosis is this: Lithæmia is only an exaggeration of a normal condition, for traces of uric acid always exist in healthy blood; but uratosis, even in the minutest degree, is pathological. There is yet another point of interest in this connection, though at present only of speculative interest, to which I desire to draw attention. It is quite possible that precipitation of the crystalline urates may occur not only in the form of the coarse masses with which we are familiar in and about gouty joints, but also in the form of minute stars or detached crystals, which can only be detected with the microscope; and it may turn out that the visceral neuroses, the thrombosis and embolism, and the occasional sudden death which are encountered in gout, are not the result of any diffuse lithæmia, but are the consequences of actual uratosis—that is to say, are due to the precipitation of minute crystals of sodium biurate (microscopic uratosis) either in the substance of the organs or in the blood itself. I hazard this conjecture on the ground of the two following observations: Sir Alfred Garrod found that the blood serum of one of his patients contained uric acid to the extent of one part in 5,714. On the other hand, I found by direct experiment that when blood serum was artificially impregnated with uric acid to the extent of 1 part in 5,000, there could be detected in it after a certain lapse of time minute stars and needles of sodium biurate. It would thus appear undoubted that in some cases of gout the blood may, though probably very rarely, become so laden with uric acid as to be within striking distance of a general uratosis throughout its entire mass. The establishment of the possibility of such a condition would obviously enable us to explain the occurrence of some very obscure incidents in the history of gout.

Secondly, the adoption of the present proposal would enable us to discuss more freely and with greater precision of language the true relation of uratic deposits to the etiological factors which are concerned in their production. According to current views these deposits are regarded as an infallible sign of the existence of the gouty diathesis, however diverse the associated conditions may be. Hence, we are in the habit of speaking of *ordinary* gout, and of *saturnine* gout. Would it not be a more accurate expression of the facts to speak of *gouty uratosis* and *saturnine uratosis?* It is not easy to believe that lead poisoning produces really and truly the same constitutional diathesis as that which exists in true gout. It seems easier to believe that the gouty diathesis and lead poisoning, while differing in all other respects, have one tendency or vice

in common, namely, the tendency to uratosis. The possession of this one vice would necessarily give to two otherwise radically distinct primary disorders a very close resemblance in regard to their symptoms and physical signs, because these latter depend almost entirely on the direct local effects of the uratosis which is common to both. This line of argument might be illustrated and strengthened by drawing an analogy between uratic deposits and urinary concretions. A large group of cases of uric acid, gravel, and calculus are the undoubted offspring of gout; but there is also another large group of cases, occurring chiefly among the poor and among rice-eating populations, which have no kinship with gout, and are the result of a totally different set of etiological factors. Nevertheless, the clinical and pathological phenomena in the two groups, depending as they do on the mechanical irritation induced by the concretions, are practically indistinguishable. Here then we have a closely analogous example in which two essentially distinct constitutional states produce identically the same morbid precipitation and the same sequential morbid effects.

On the other side, it might be contended that this line of argument is inconclusive, and is directly rebutted by established facts relating to the hereditary transmission of gout, for, as is well known, sthenic gout in the grandfather may reappear in the grandchild as atonic or "poor" gout. These two conditions differ from each other quite as much as does ordinary gout from saturnine gout. Almost the sole point of resemblance between them is the occurrence in both of uratic deposits, and yet they are undeniably of common constitutional origin. To this objection it may be answered that gout is not in reality a homogeneous nosological unity, but a loose bundle of morbid tendencies. And it is quite in accordance with what we know of the laws of heredity that these several tendencies should be transmitted in unequal degrees, or that some of them should not be transmitted at all, while others are transmitted with increased intensity. In this way it might come to pass that a grandchild might inherit from his plethoric gouty grandfather his tendency to uratosis, but not his tendency to plethora—just as he often does inherit the characteristics of his grandfather's eyes and nose, but not those of his forehead and chin.

Then, again, it is admitted that there are other factors which have considerable etiological force in the production of uratic deposits besides the gouty diathesis and lead poisoning, namely, senescence, nervous shocks, local injury, and trophic changes. Two or more of these may act in combination in determining the occurrence of uratic precipitation. Adopting the nomenclature suggested, we could speak of a uratosis of purely gouty origin, of a uratosis in which a gouty tendency was reinforced by lead poisoning, by senescence, by shock, or by local injury; or we might speak of a purely saturnine uratosis, or of a uratosis in which saturnine

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poisoning was reinforced by a previously existing gouty tendency —and so forth. By this mode of expressing ourselves we could conveniently indicate the concurrence of several factors in producing uratic precipitations, none of which alone were adequate to determine their occurrence.

Lastly, we should gain something in regard to a clearer apprehension of therapeutical indications. We could, on the one hand, aim at minimising the incidence of the predisposing cause—be it the gouty diathesis, or lead poisoning, or whatever else might eventually come to be regarded as the most important predisposing factor. Or, on the other hand, failing in that direction, we could aim directly at the uratosis itself. In this latter way we might succeed in preventing the more serious consequences of an irremovable predisposition; just as in uric acid gravel we are able, by alkalising the urine, to guard our patient against calculous accidents in circumstances where we cannot remove the causes predisposing thereto. Uratosis is, like gravel, of and for itself a disastrous pathological accident; and it may induce consequences in the joints or in the kidneys of a permanent character, which far exceed in gravity, and far outlast, the etiological factors which originally gave rise to it.

And should it turn out at last, after further inquiry and investigation, that there does subsist an absolute and invariable solidarity between uratic deposits and the gouty diathesis—and I wish to express no positive opinion on this point—we should lose nothing by adopting these proposals. On the contrary, we should distinctly gain in facility of description and in clearness of conception in regard to the main incidents of the gouty state.—*British Med. Journal, Nov.* 22, 1890, *p.* 1163.

3.—THE USE OF STROPHANTHUS IN GRAVES'S DISEASE.

By E. D. Ferguson, M.D., Troy, New York.

[In the course of his paper, from which the following excerpt is taken, Dr. Ferguson says that prior to 1888 his experience had been one of nearly uniform failure to relieve or benefit patients suffering from the disease. Since that time he has treated eight cases of Graves's disease with strophanthus, and gives the results of his use of that drug as follows.]

The administration of strophanthus afforded relief and allowed a return to ordinary occupations in every instance excepting one, and in that case there was associated pulmonary disease, probably of a tuberculous character, which implied an unfavourable termination aside from the exophthalmic goitre. In this instance there was no improvement in any of the symptoms, the case passed from my observation and doubtless progressed to a fatal issue, though I have been unable to trace the history. Several of the cases are

still under observation, and I consider them still under treatment, for though they have improved so as to consider themselves in some instances as cured, in my own judgment the treatment should be continued with more or less regularity for a longer period of time. I have also excluded from my report some cases recently seen, and in some cases seen only once and that failed to keep me advised of their progress.

In no instance has either the exophthalmos or the goitre been entirely removed, and so far as the goitre is concerned I should not expect its removal, for where the enlargement has existed for some time it becomes of so dense or fibrous a consistence as to exclude the idea of its complete removal. So far as I could judge, however, there was a notable degree of improvement both in the exophthalmos and in the enlargement of the thyroid body, but it is manifestly difficult or even impossible to express in mathematical terms the changes in these features of the disease as can be done in the rate of the pulse. In the case of the heart, however, I was satisfied that not only were the rate and rhythm of the contractions favourably influenced, but there undoubtedly existed a dilatation of the left ventricle, which improved so as to leave no physical or symptomatic evidence of cardiac lesion.

Aside from any theoretical considerations as to the way in which the agent acts, the fact remains that benefit was apparently the direct result of its use, a benefit so notable as almost to justify the claim of a cure in some of the cases, but it would be wise to stop short of such a claim, for it was observed in one of the most favourable instances that while the result in a general way was eminently satisfactory, still any mental anxiety or disquietude was sufficient to raise the pulse rate from about 80 to over 100 for a period of several days.

The period of time during which the agent has been on trial is altogether too brief to justify too glowing claims for permanency of results, and the writer cannot divest himself of the fear that the improvement will not in the majority of cases remain permanently.

The only claim that is justifiable at present is that strophanthus has proved more notably beneficial in the treatment of exophthalmic goitre than any other drug or remedial measure.

A few words relative to the agent itself, or rather its preparations and dosage, may be useful. The only preparation used by the writer was the tincture, but it was observed that a notable difference existed in the taste of different specimens. This difference related mainly to the bitterness, and upon investigation was found to be ascribed by some pharmacists to the length of time the drug was allowed to remain in the menstruum, and by others to the improper predominance of pods over the seeds in preparing the infusion. It was impossible to conclude just how

the excessive bitterness was induced, but it was apparently due to an oil or oleo-resin which would render the tincture opaque on the addition of water. Several ounces of this oily material were shown to the writer by one pharmacist as having been separated in the process of manufacturing the tincture.

In some instances the presence of a large amount of this bitter principle seemed to be productive of disturbance of the stomach, which was avoided by using other samples with less bitterness, and on the other hand some instances were noted where the bitterness was not objectionable, though on the whole the impression remained that those specimens that were notably bitter did not act as favourably.

The administration was by the conventional method of three doses daily—one at each meal—the initial dose being from 8 to 10 drops, which was increased, if necessary to reduce the frequency of the pulse, to 15, 20, or even 25 drops, and in fact relief was not obtained in some cases until the large doses mentioned had been used. In no instance did unpleasant results appear to be due to the drug, aside from some nausea which was ascribed to the individual preparation used, and apparently due to an excess of the bitter principle.

There have been but few, and those brief, notices of the use of strophanthus in Graves, or Basedow's disease, and its use is not advised in any of the recent "year books" consulted by the writer. It had been used by him for over a year in the treatment of the disease under consideration before he saw any notice in medical literature of its prescription by others. Within a year he has seen in the medical journals a few notices of its use, and the reports have been quite uniformly favourable.

Whether its apparent utility will bear the test of time and larger experience is still problematic—at present it seems to be our most valuable therapeutic resource in exophthalmic goitre.—*Journal American Medical Association, Nov.* 29, 1890, *p.* 786.

4.—A CLINICAL NOTE ON THE SOPORIFIC ACTION OF MERCURY.

By William Joseph Tyson, M.D., Folkestone.

I am not aware that the above action of mercury in the class of case I am about to describe has been recorded. No doubt the fact is known to many, yet it does not appear to me to be so generally, and that is my reason for bringing the subject forward at this meeting (Brit. Med. Assn., 1890).

The cases in which I have found blue pill—for this is the form of mercury I am referring to—give such good soporific effects are rather difficult to describe, and must be given in a more or less general way. Many men would call them cases of biliousness, and

for want of a better term I am content to use it. The patients are generally over 40, complaining of lassitude, loss of appetite, general fulness of the abdomen, pains in the shoulder-joints, tongue generally of a whitish brown colour, a nasty taste in the mouth, eyes are rather "thick," a want of clearness of thought, more or less dull pain in the head not confined to any one particular spot, irritability of the skin, and, above all, sleeplessness at night. There may be many more symptoms and signs than the above, or few of them may be present, but, when the symptom of sleeplessness is prominently complained of, it is here that we find the soporific action of blue pill followed by saline draughts peculiarly brought out. Now, the symptoms detailed are principally those found under the heading of bilious dyspepsia, but there is this important clinical difference: whereas sex, richness of food, want of exercise play important parts in producing the above form of dyspepsia, the cases that I have in mind are found as often, if not more so, in women, and where the plainest diet and moderate exercise have been taken.

There is a little doubt that the sea air has something to do with the above state of health; people who have come down to the seaside after a long residence inland frequently develop after a few days' sojourn all the aforementioned symptoms. I believe that we who practise in seaside resorts should less often be called upon to prescribe for this condition were a little mercurial taken immediately by the patient on his arrival, but perhaps, on the whole, this had better be left in our hands.

Again, I do not associate these cases with those which are commonly called "lithæmia," or the substitution of uric acid for urea as the final product of disintegration of albuminous substances within the body: under this last condition we obtain the more remote symptoms of gout.

What is the exact action of the mercury which brings about the above happy result I do not know, nor am I anxious to speculate or propose theories. Murchison supposed that it possessed a double action, for whether or not the secretion of bile was increased, there was certainly more bile passed when mercury was being taken; thus an eliminating action was brought about, so that less of the bile constituents were absorbed from the intestines than usually. Again, he supposes, in some way or other, the albumen is more thoroughly disintegrated. But what is important for us to know is the use of a drug which will enable us to give our patient a good night, whilst at the same time we are treating the root of the disease, and apparently not giving ordinary soporific drugs.

It is needless for me to use any padding to this paper in the way of quotation of cases; they would be uninteresting and wearisome; and the title of my paper does not admit of it.—*British Med. Journal, Jan.* 31, 1891, *p.* 221.

5.—A CASE OF ACROMEGALY.

By Robert Ruttle, L.M. & S. Univ. Dubl., of Accrington, Vice-President Blackburn and District Medical Society.

The first of the accompanying photographs is that of the patient just before her marriage in 1876; at that time she was 24 years of age. The second, taken recently in the same position, affords a striking contrast. (*See pages* 142 *and* 143.)

I saw the patient in May, 1879. She was not then or since, until October 11th, 1890, a patient of mine, but at that casual meeting her face, hands, and feet at once attracted my attention. I thought of cretinism, but the woman was clear, cool, intelligent, though certainly in a peculiar condition, and she let fall the remark that she had been under Dr. Popjoy for a considerable time. She is now 38, has been married fourteen years, has had no family. She had been accustomed to heavy farm service, describes herself as "strong and healthy, with cheeks like roses," up to the time of first symptoms. She had no severe illness nor any irregularity, except that her menstrual periodicity varied slightly, but without pain or any other inconvenience; she menstruated once after marriage, never since then. Soon after she began to experience severe pains about vertex, back of head, and in the cervical region, which increased gradually in intensity; she also complained of a feeling of "numbness" all over her body; the headache became "dreadful," and she then noticed that her hands and feet were "swelling," because No. 7 gloves no longer fitted her hands, and 5 in boots also became too small. This enlargement went on gradually. When she was twelve months married she was suddenly seized in the mill with an attack of vertigo followed by total loss of consciousness. She was taken to a friend's house, and from there removed home with difficulty, kept her bed for nearly three weeks, hanging apparently between life and death. Her convalescence was slow, alternating with relapses of agonising pain, accompanied by vertigo and loss of consciousness. These attacks seem of late years to have somewhat decreased in severity. Treatment always was powerless to relieve her, rest and quiet alone doing any good; she appeared better when idle in the country.

At the time of the severe explosion her extremities rapidly enlarged, so much so that her left ring finger burst her wedding ring, a moderately stout one. She also began to experience failure of sight at this time, which has gone on to total blindness in the right eye from atrophy of the optic nerve. In the left eye the temporal half of the field of vision is gone, and the activity of the upper limit at the nasal side slightly encroached on; the hemianopsia is very clearly defined; refraction is emmetropic, the pupils always somewhat dilated; the optic axes are divergent.

Heart, liver, kidneys, &c., appear sound, no albumen or sugar present; occasionally a slight cloud of phosphates in urine. Digestion fairly good, bowels inclined to constipation; she eats little, often not till evening. She can sleep well, but wakens often during the night. I might add that her pain now generally comes on at night and wakens her; but sleep and rest afford relief, stimulants rather increase pain. She does not use tea. Coffee gives some slight relief; coffee and cocoa are her usual beverages.

Her face is pale, with skin smooth and few wrinkles, but not very marked; slight puffiness under lower lids certainly varies, while eyes are somewhat divergent and lids large; the cartilages are enlarged, nose long and very large; both lips hypertrophied, especially the lower one; the lower jaw and chin enlarged, prominent, prognathous; teeth separated, tongue large;

A. H., 1876.

the face does not appear at all broadened nor the frontal sinuses enlarged. Her head measures $23\frac{1}{4}$ inches in circumference round the brows.

She has become somewhat stooped, and complains of sciatic pains, especially on the left side, which compel her to walk lamely. Her left hand measures $8\frac{1}{4}$ inches in length and is $8\frac{3}{4}$ inches round the knuckles; the second joint of left forefinger is $3\frac{1}{4}$ inches in circumference; no women's gloves or boots fit her; she wears $8\frac{1}{2}$ boots. She can now close her hand and make a fist. Both radius and ulna are enlarged, so are the malleoli and head of tibia. The vertebræ appear normal in size, but the sternum is certainly larger than normal; the pelvis also is certainly larger, the ileum feeling most massive. She says she "hardly had any hips before." She has had dyspareunia for two years; the vagi-

A. H., November, 1890.

nal orifice appears contracted spasmodically, though it allowed the passage of the finger, when the os tincæ and the canal of the vagina appeared normal. She had slight eczema of external auditory meatus, but no appreciable enlargement of the ears. She complains of great sensitiveness over the lower cervical and first dorsal vertebræ. A playful slap on the shoulders has often produced unconsciousness. She cannot bear the least noise; a sudden noise as of a door slamming will often act like a blow.

I can elicit no family history of gout, syphilis, or tubercle. Her father is still living; her mother died at 68; brothers and sisters are healthy. Her intelligence is clear, and quite above the average of women in the lower stratum of midland rural life. She presents no deterioration of faculty save that of sight. The thyroid is enlarged, and I believe the thymus also. I may here be permitted to point out the most noteworthy features of this particular case:—1. The stoppage of catamenia. 2. The enlargement of extremities without pain. 3. Pain in the head (vertex without enlargement). 4. The eye symptoms: R, atrophy; L, temporal hemianopsia. 5. The abnormal sensitiveness to sound. 6. The tenderness and sensitiveness over her cervical and upper dorsal regions. I think that we have here enough to point to derangement of a neurotrophic character, of the precise characters of which we are as yet, I fear, ignorant. The atrophy and hemianopsia certainly favour Dr. Marie's views respecting an enlarged pituitary body.

The only drug which I have found to give her any relief has been exalgine, in doses of 3 grains repeated every eighth hour. This almost completely relieves the migraine, and has given her great ease from the sciatic pain.—*Brit. Med. Jour., Mar.* 28, *p.* 697.

6.—REMARKS ON A CASE OF ACTINOMYCOSIS.

By A. J. Ochsner, M.D., Surgeon, Augustana Hospital, Chicago.

Thirteen years ago Bollinger showed that the disease in cattle known as "lumpy jaw" is due to a parasite, and a year later Israel found the same parasite in the discharge from an abscess connected with the pleural cavity in a woman. The parasites were named actinomyces, and the disease actinomycosis. The disease is very common in the cow, less common in the pig and horse, and, according to recent observations, not very rare in man. It most commonly attacks the tongue ("woody tongue" of cows) and the lower jaw, but has been found in every organ, reaching the different parts of the body, either by continuous growth or by being carried through the blood or lymph-channels from the original focus.

The parasite is a fungus, not yet permanently classified, composed of radiating filaments, somewhat club-shaped at the ends,

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but frequently split into a number of smaller parts. Under the microscope it can be recognised with a power of 250 diameters, but it requires an immersion lens of from four to six times this power to make apparent its finer subdivisions. One can, however, recognise collections of these fungi with the naked eye. They form small, pale-yellow granules, reminding one of mustard-seeds which have been immersed in liquid. When the location of the infection favours the formation of a tumour of considerable size, the tissues composing the growth are also characteristic to the naked eye. They resemble loose, flabby, granulation-tissue interspersed with the characteristic yellow granules. Each of these granules contains a number of microscopic spherules, and each of these is one of the fungi. The fungi can be readily demonstrated by immersing one of the granules in a ten per cent. solution of potassium hydrate in water, and placing it under the microscope. The pressure of the cover-glass crushes the spherules and makes them somewhat irregular. The parasite can be stained most conveniently by Gram's method, either on the glass slide or in sections, but for diagnostic purposes staining is not necessary.

The manner in which the parasite enters the body is often obscure. It may enter through an external wound, through a hollow tooth or an abrasion in the mouth, through an abraded surface in some part of the alimentary canal, or by inhalation through some part of the respiratory tract. In many cases infection might easily have been prevented if it were generally known that "lumpy jaw" in cattle can be transmitted both directly and indirectly to man, and that the disease in man is quite as fatal as in animals. Very frequently the manner of infection can be directly traced. A farmer or drover will, for instance, use the jack-knife that he carries in his pocket, for the purpose of opening a tumour in a case of "lumpy jaw," and later will use the same knife for cutting his own food. Again, such persons handle these animals and then eat without washing their hands, or they drink out of pails or from pumps which have come in contact with diseased animals, or use spears of infected hay or straw as tooth-picks. It is almost certain that the parasite lives and thrives on the surface of several plants, and that it is frequently introduced together with parts of these plants or by coming in contact with some abraded surface, and that in animals infection very frequently takes place from wounds of the gums, which become filled with these parasites while the animal eats grass, hay, straw, or grain on which the parasite has developed. So much for our present knowledge of this disease.

The case that I have under observation at present is a gentleman fifty-three years old, a farmer by occupation, healthy until eight months ago, when he began to suffer from severe continuous

pain in the region of the left antrum of Highmore. He had four decayed teeth removed from the left upper jaw but was not relieved. Soon after this an abscess formed and pointed on the cheek at a position opposite to and a little above and behind the canine fossa. This was opened by his physician, and subsequently twice opened spontaneously before he was referred to me at the Augustana Hospital, August, 1890. When I first saw him, the skin surrounding the sinus was thickened and infiltrated, and a drop of pus squeezed from the sinus contained the characteristic pale-yellow granules which were proved to contain actinomyces.

The treatment consisted in removing all of the soft tissues which were involved, in chiselling away the outer surface of the antrum, thoroughly curetting the cavity, swabbing it out with ninety-five per cent. solution of carbolic acid and then packing it with iodoform gauze. The wound healed normally from the bottom by granulations, and the patient did well until October, when an œdematous mass appeared above his left ear. I opened this and again evacuated half an ounce of pus and granulation-tissue containing the same characteristic granules in which were the parasites. This cavity was also packed with iodoform gauze and is healing by granulation. The patient is now doing well, and unless the parasite has advanced to some other point, which cannot as yet be determined, he will undoubtedly permanently recover. Infection in this case probably took place through the patient's decayed teeth. From October, 1889, to February, 1890, he had handled and treated a horse supposed to be suffering from "lumpy jaw," and not knowing the dangers of infection had been rather careless.

Four years ago I reported a case of actinomycosis of the lungs. The patient was treated with arsenic and sent to New Mexico, where, I am told, "lumpy jaw" does not occur among cattle. He lived four years, and died last June from actinomycosis of the lungs, judging from the statement of friends. No autopsy was made. When I first treated this patient I made a number of experiments on animals, inoculating rabbits under the skin of the ear and in different parts of the body, but with negative results. The material used for inoculation consisted of the granules found in the sputum of the patient. The last experiment that I made consisted of inoculating a rat between the teeth. About two weeks later the animal disappeared, but in two months the mate of this rat died from actinomycosis of the shoulder and neck. Not having inoculated the mate, and having lost the original rat, I never reported the experiments, but, of course, it is probable that the mate was infected with actinomycosis by the inoculated rat. The rat was kept in a large room where it could easily get under some boards; it probably became ill, and hiding somewhere, died from the disease.—*Medical News, Jan.* 24, 1891, *p.* 97.

7.—ON SOME NEW MILK STERILISERS FOR DOMESTIC USE.

By Henry Ashby, M.D., F.R.C.P., Physician to the General Hospital for Sick Children, Manchester.

At the present time we are only beginning to realise that one of the most important differences between human and cow's milk is that the former is free from living organisms, while the latter, by the time it is delivered to our houses, contains many microbes, and this is especially true of the cheaper classes of town milk. In such milks we have only to examine the sediment in the large milk-cans in order to detect matter foreign to the milk; thus we may find hay seeds, fragments of straw, fæcal matter, sand, dirt, epithelial scales, human and cow's hairs. And, if we further inspect the milking process and see the condition of the cows and cowsheds, we shall cease to wonder at the contamination present; especially if we bear in mind that in the winter months the cows

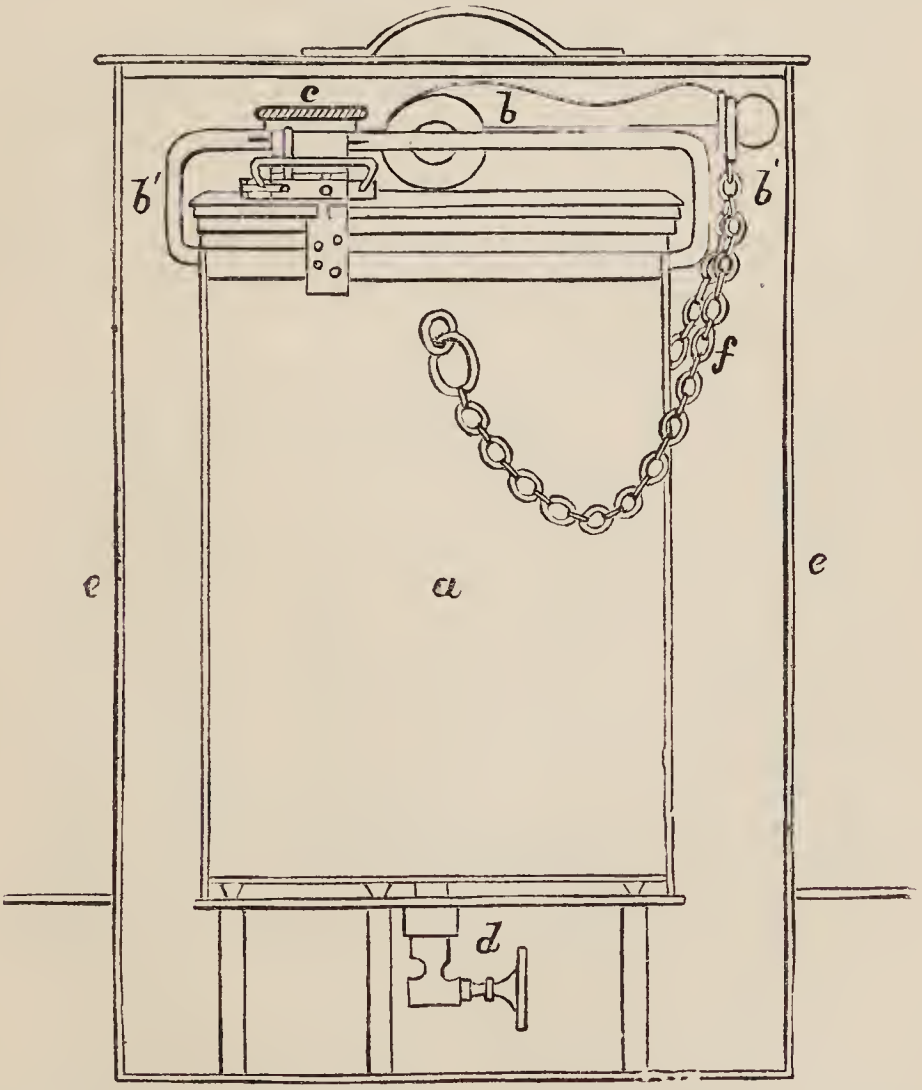

Fig. 1.—Escherich's milk steriliser. *a*, Tin containing milk. *b*, Lever; *b' b'*, catch for securing lid. *c*, Wool filter. *e*, Outer tin vessel containing water. *f*, Chain for hanging up milk tin.

are milked before daybreak and after sunset, so that the process goes on in the dark, or at best by a dingy light. In addition to these tangible impurities, bacteria in number from 20-100,000 per cubic centimetre may be found in milk (Escherich). The presence of bacteria in milk is evidence that decomposition changes are in progress which sooner or later, according to the temperature to which it is exposed, lead to its turning perceptibly sour to the taste, and curdling. It need hardly be said that the worse class of milk for an infant is that which "is on the turn," for not only is the curd rapidly thrown down in the infant's stomach, but the bacteria present are not destroyed, and, especially when the digestive juices are weak, continue to effect the decomposition changes which they have begun outside the body. The best cow's milk for an infant is that which is fresh and absolutely free from microbes. Of other dangers to the infant and others from taking uncooked milk there is evidence to show that milk may be the means of conveying the infective bacillus of tubercle, diphtheria, scarlet fever, zymotic diarrhœa, &c., from the farm to the household of the consumer of milk. In order to avoid these dangers, the advice to boil the milk has often been given. But boiling the milk over a fire has the disadvantage of running the risk of "burning" it; moreover, the taste is materially altered, and if the milk is only just brought to the boiling point, it is doubtful if all the bacteria which may be present are destroyed.

To effectually "sterilise" milk Professor Soxhlet some three years ago devised his now well-known apparatus, but which in this country at least has not found its way into any great number of households. It is undoubtedly efficient, but it is somewhat complicated and expensive to work on account of the frequent breakages of the bottle.

More recently modifications of Soxhlet's apparatus have been made on the same principle, and if his original apparatus falls into disuse, we shall nevertheless be grateful to the Munich professor for having given an impetus to domestic milk sterilisation.

Of the more recently constructed apparatus which are now to be obtained none seem better adapted for either family or hospital use than the one devised by Professor Escherich, of Graz. It consists of a cylindrical tin vessel, *a*, of some three pints and a half capacity. It has a removable lid at the top, which can be fastened on, hermetically sealing the tin by means of a lever and catch arrangement, *b b*. When the lever *b* is raised the lid can be removed; when forced down (as in the *engraving*) the lid is secured. Fixed in the lid is a wool filter arrangement, *c*; the passage through the filter can be opened or shut by means of a stopcock worked by a stirrup or loop of wire. At the bottom of the tin is a stopcock for drawing off the milk. The tin fits into an outer vessel, *e*, which contains water and is placed on the

kitchen range. To use the apparatus the infant's daily ration is prepared, or two days' rations may be taken. In the latter case two pints of fresh milk and one pint of barley water and sugar are placed in the inner tin and the lid applied, the stopcocks both at the bottom and in the lid being turned off. The milk tin is placed in the outer vessel containing water, the outer lid closed and placed on the kitchen range, and the water is kept boiling for half an hour. The temperature of the milk is in this way maintained at 210° F., a temperature not high enough to risk an explosion, but sufficient to destroy the microbes in the milk, at least as far as all practical purposes are concerned. No marked change takes place in the taste of the milk. The apparatus is allowed to cool, the inner tin is hung up to the wall of the pantry or other cool place by means of the chain, *f*, and the infant's food is drawn off through the stopcock as required; at the same time the stopcock in the lid is turned on, and as the air enters it is filtered through the plug of wool present in the filter. The food is of course warmed up before giving to the infant.

The feeding bottle suggested by Escherich resembles in size and shape an ordinary eight-ounce medicine bottle, it is graduated, and instructions concerning the amount and strength of the food to be prepared, and the amount to be given in each bottle, are engraved on the side. The maker is Theodor Timpe, of Magdeburg, North Germany. The price in Germany is 12s. 6d. (It can be obtained from A. Hailwood, St. Mary's-gate, Manchester.)

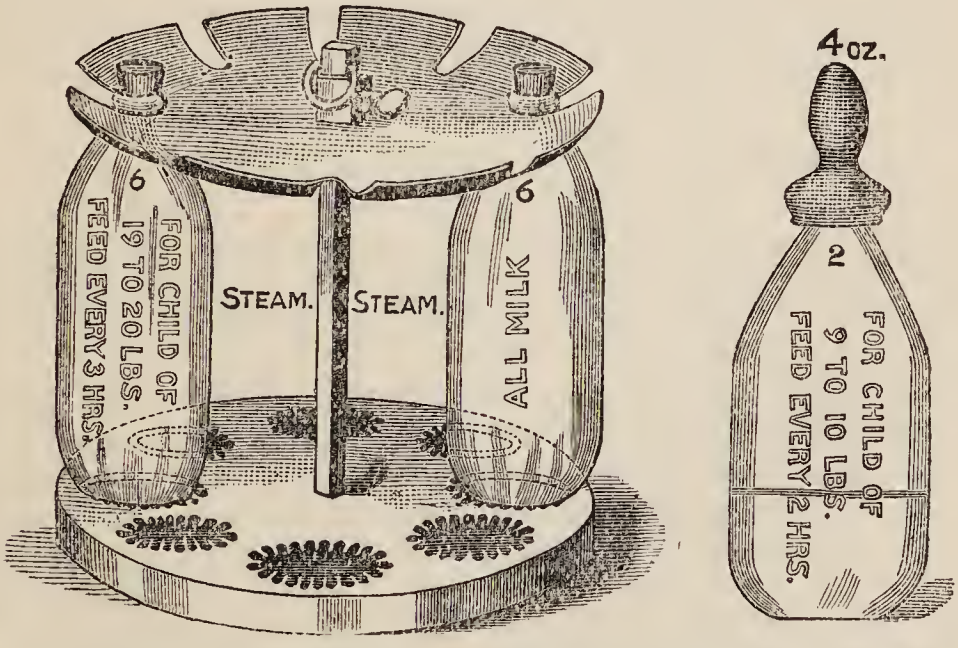

FIG. 2.—Seibert's milk steriliser, consisting of tin tray and series of feeding bottles of different sizes, according to weight of infant.

Another simple form of milk steriliser is one devised by Dr. A. Seibert, of New York. It consists of a tray (see Fig. 2) and eight

feeding bottles, with special rubber stoppers and a nipple to fit on to the bottle when the infant is fed. There are six series of bottles, the smallest size being 3 oz. capacity, and the largest 8 oz., arranged for infants according to their weights. The bottles are filled up to a given mark with milk, and then up to the neck with barley water or water, and sugar added. They are then fitted into the tray, and steamed for half an hour in a saucepan provided with a lid. During the steaming process, the rubber stopper is fitted loosely into the bottles, so that the steam escapes by two slots or grooves in the side of the stopper; when the steaming is complete, the stoppers are pressed into the bottles, so as to seal them up. When the infant is fed, a bottle is warmed up and the stopper withdrawn, and the nipple placed on the bottle.

Modifications of Soxhlet's original apparatus have been suggested by Prof. C. Flugge and several others. The most important change in Flugge's is that instead of rubber stoppers with small glass rods fitting into the stopper the feeding-bottle is provided with a loosely fitting glass cap, which he has proved experimentally to answer the purpose of preventing the microbes in the atmosphere entering the bottles. I have not had an opportunity of examining Flugge's apparatus, and I do not know if it is to be had.

The systematic use of some efficient form of milk steriliser in the household, especially where infants are being artificially fed, is, I believe, of the greatest importance; their use will, I feel sure, tend to the diminished use of many of the patent foods now so commonly employed, and lessen infant sickness and infant mortality.—*Lancet, Feb.* 14, 1891, *p.* 360.

DISEASES OF THE NERVOUS SYSTEM.

8.—ON THE BLUE LINE ON THE GUM IN PLUMBISM.

By Thomas Oliver, M.D., F.R.C.P., Physician to the Royal Infirmary, Newcastle-on-Tyne.

The physical sign of plumbism which is most looked for and generally met with is the presence of a blue or slate-coloured line on the gums, noticed by Burton, but previously described by Tancquerel. When present it is a valuable sign, but it may be absent; it generally is so when the teeth and gums are perfectly sound and the mouth is kept cleansed. And yet there may be colic and no blue line, or a girl may die from acute encephalopathy, with no blue line on the gums characteristic of the poison present from first to last. There are two blue lines on the gums that must be distinguished from each other: one is a delicate line just at the margin of the gums and teeth, but not involving the gum; it is a

deposit in the interstices between the teeth, and is seen in workers who have been exposed to white-lead dust for a few hours. This is removed by rinsing the mouth and cleansing the teeth; it is simply a deposit of lead sulphide on, and not in, the gum. The other and characteristic line is bluish-black, and occurs also at the margin of the gum, where it is not in complete apposition with the teeth. There the gum is frequently ulcerated and irregular in outline. The teeth are discoloured, and are covered with a brownish, soft, pulpy fur; the odour of the breath is disagreeable, and the patient complains of a metallic taste in the mouth. Where the teeth are absent there is no blue line. I have seen this line develop the day after a large dose of acetate of lead had been taken; the line persisted for a few days, and then disappeared. Out of several scores of cases examined by me, I find when the blue line is absent in one gum that it is more frequently found in the lower than the upper; if present in both gums, that it is usually more deeply developed in the lower. The deepest tint is observed underneath the outer incisors and canines. The fact of the line being absent where the teeth are perfectly white and the gums healthy suggests as a necessity for the development of this physical sign that there must be a broken surface of the gum; this alone, rather than bad teeth, although as the two are generally associated it is difficult to assign to each its proper share. That the gum, however, contributes most to this is shown by the fact that in girls who have been most exposed to lead dust for a few hours or a day or two, and in whom no blue line has been observable, I have on several occasions found the gums swollen and red, but not painful, as if they were the seat of irritation. It is in gums such as these that we subsequently meet with the blue line. An interesting point about blue line in the gums is that I have never found it in animals poisoned by lead. The blue line, however, though noticed most frequently, and as being most highly developed along the outer margin of the gum, is also seen running along the inside towards the molar teeth. The blue line may be present for months, and yet no other evidence of lead poisoning may be present save that of saturnine cachexia, general malnutrition, occasional constipation, and slight colic. It is difficult to say positively how long the blue line of plumbism will remain after removal of the individual from the influence of lead; in some of my own cases it has disappeared very quickly—in one within eight days—but usually from two to three weeks in its minor forms, and three months or longer in the severer cases. This is the limit which I expressed at a meeting of the Royal Medical and Chirurgical Society two years ago, in answer to a question of Dr. Stephen Mackenzie, who, with Gowers, regarded a year as the period during which the line may be present. Since that date I have carefully watched the disappearance of this line, and can

confidently say that within three months all traces of it may have disappeared, whilst ulceration might still remain.

In addition to the blue line on the gum there are occasionally to be noticed discoloured patches of mucous membrane, varying in size from a split pea to a shilling, inside the cheek—most frequently met with opposite the lower canine and outer incisors. It is said by some authors that the administration of potassium iodide will develop a blue line in plumbism when absent. I have never succeeded in doing so, nor has Inglis, who has repeatedly tried the experiment, managed to develop it by these means. The other metallic poisons which give rise to a line on the gums are copper and bismuth. I have seen, however, a black line due to some form of carbon met with in a miner, who was under the care of Professor Philipson. The man, aged 40, was admitted into the infirmary complaining of pain in the back and loss of power in the legs, of three years' duration. He was cachectic, had drunk largely of beer, but never out of a metallic vessel. He came from Cumberland, where he had been working in a 20-inch seam; the coal was soft, and there was much dust. In this man there was a distinct bluish-black line at the margin of the teeth which struck observers differently, as being black or bluish according to the light in which it was examined. That on the lower gums, when looked at from above, appeared as a delicate line, bluish-black in colour, but on careful examination it was noticed that the line depended upon a deposit of dark pigment upon the teeth, and underneath the gum was retracted and exhibited a slight red line. There was no deposit in the gums. In diseased conditions attended by marked deterioration of health, as, for instance, phthisis, a delicate red line is occasionally noticed on the gums, and in copper poisoning the gums are ulcerated and a greenish blue coloration is noticed depending upon a deposit in the depth of the ulcer. (From Dr. Oliver's Goulstonian Lectures.)—*British Medical Journal*, *March* 21, 1891, *p.* 627.

9.—THE SIGNS AND SENSORY SYMPTOMS OF LEAD PALSY.

By Thomas Oliver, M.D., F.R.C.P., Physician to the Royal Infirmary, Newcastle-on-Tyne.

The nervous system suffers severely in lead poisoning, ill-defined pains and cramp-like sensations in the limbs, particularly in the calves of the legs, and dull aching pains in the joints, which are regarded as rheumatic, are complained of. The muscles are tender to the grasp. There is a sensation of tingling or numbness in the fingers, and soon afterwards certain muscles become suddenly or slowly paralysed, undergo atrophy, or cerebral symptoms supervene, including convulsions and coma. To Duchenne also belongs the honour of having localized the paralysis, and of describing the

order in which the various muscles are affected. He observed the immunity of certain muscles, particularly the supinator longus. Regarded in the light of a peripheral lesion by Duchenne, Vulpian and Raymond reported cases of lead poisoning in which the paralysis was general, and thus they threw upon Duchenne the responsibility of establishing a differential diagnosis between it and subacute general anterior poliomyelitis.

As a matter of experience, we may say that paralysis as a sign of lead poisoning is met with almost always in the chronic, seldom in the acute, form. Before paralysis arises there has generally been experienced one or more attacks of colic, headache, vomiting, or the patient has had lead encephalopathy, but in some of my cases paralysis of the extensor muscles of the arms occurred without the patient ever having suffered from colic. Gowers divides the local muscular paralysis with wasting met with in lead poisoning into two classes, one, the more frequent, where the loss of power precedes wasting.

We are all familiar with the classical form of paralysis met with in lead poisoning—the ordinary double "wrist-drop"—double, for it is generally symmetrical, although, as a rule, it is more pronounced on one side than on the other. It also develops on one side earlier than on the other. The patient at first complains of weakness in the hand—the right hand as a rule—and it is noticed that his grasp is not so firm as it used to be. The disease may proceed no further. Generally the weakness becomes more intense; suddenly, or, it may be, gradually, it deepens into a paralysis, which affects principally the extensors of the fingers—usually those of the middle fingers.

Whilst the poison has a special predilection for the muscles already described, these may escape and the muscles of the other arm may be involved—those which constitute the Duchenne-Erb group, namely, the deltoid, biceps, brachialis anticus, and the supinator longus, and to these are generally superadded paralysis of the supra- and infraspinatus. This form of paralysis, usually bilateral, occurs in the more inveterate types of lead poisoning. Of the muscles enumerated, the deltoid is generally the first to become affected, and, in not a few cases, it is the only muscle of the Duchenne-Erb group that is paralysed—as in a case reported by Buzzard.

Occasionally certain muscles of the legs are paralysed; this occurs, according to Tancquerel, in 13 per cent. of all cases of lead paralysis as a complication of the other forms. If it is part of a general paralysis, the muscles which emerge from the pelvis, for example the psoas, may be affected. The paralysis, under these conditions, is slight and lasts no length of time. In the leg, as in the arm, there is the same predilection for certain muscles, those that are homologous with the muscles of the forearm—particularly the peroneal muscles—and the long extensors of the toes, which are

supplied by the peroneal nerve, the tibialis anticus, supplied by the same nerve, escaping. I have only met with this peroneal paralysis in cases where there was wrist-drop. Tancquerel alludes to laryngeal paralyses, and Sir Morell Mackenzie points to lead as a cause of paralysis of the adductors of the vocal cords.

There is a form of generalised paralysis of rapid development occasionally met with in lead poisoning. The muscles are paralysed in their whole length and *en bloc*, the muscles of any region, sometimes within a day, becoming absolutely powerless. The subjects of other forms of paralysis may thus suffer, and in them the malady may invade rapidly and in succession muscles that have hitherto escaped. Sometimes, indeed, a generalised paralysis is induced, either in an ascending or descending form, which extends rapidly day by day, always invading *en bloc* the whole length of the muscles of the limbs, the trunk, abdomen, and thorax. The patient occupies the dorsal decubitus, unable to move a limb, and is incapable even of eating; the intercostals, the diaphragm, and muscles of the larynx are involved. The patient suffers from dyspnœa and loss of voice. The noteworthy feature in these cases is that the muscles of the head and neck are respected. Rapid as is the development of this form of paralysis, it just as rapidly begins to mend, and it is exceptional for death to come about by asphyxia, as occurs now and then in acute ascending paralysis. Whilst recovery is the rule, death has occurred by respiratory paralysis, as in the case reported by Strauss and Heugas.

Minor degrees of this general form of paralysis are also met with. Sir Dyce Duckworth reports the case of a woman, who, after using a cosmetic for five years, exhibited the anæmia and blue line of lead poisoning, and suffered from paralysis of arms and legs, also the subcutaneous nodules and gout. The muscles of the upper parts of the arms and scapulæ, but particularly the deltoids, were affected; in the legs the muscles were much wasted and flabby and were the seat of tremors.

Sensory Symptoms.—Pain frequently precedes the various forms of paralysis, but seldom continues after the muscles are affected. In my notes I find it a very frequent symptom preceding paralysis of the legs. Sensation, as a rule, is unaffected, but in a very large number of cases patches of analgesia and anæsthesia are met with over the inner and posterior parts of the forearm in wrist-drop, and are also met with on the leg.

Of the rarer forms of lead paralysis I would mention paralysis of the third nerve as in a case successfully treated and reported by Buzzard in *Brain*, part 11, 1890, where there was ptosis of the right eyelid, with abolition of movement of the upper, lower, and internal rectus; the pupil was dilated and did not react to light. In many of my own patients there has been diplopia without any apparent muscular defect; in others, slight internal strabismus,

and in two cases very marked nystagmus in the acute stage of neuro-retinitis.

In a small percentage of cases of plumbism there are disturbances of bladder function. A few women who have come under my observation have not been able to retain their urine, they have in the absence of any local cause suffered from incontinence; others are unable to empty the bladder. (From Dr. Oliver's Goulstonian Lectures.)—*British Medical Journal, March* 21, 1891, *p.* 630.

10.—ON ACUTE ENCEPHALOPATHY OF LEAD POISONING.

By Thomas Oliver, M.D., F.R.C.P., Newcastle-on-Tyne.

In nearly all cases with acute brain symptoms arising in the course of lead poisoning there is increased intracranial pressure. The convolutions are flattened, and this may not be without its influence, although possibly lead itself may have some special effect upon the disc and retina. Leber and Deutschmann have propounded the theory that optic neuritis may be caused by irritating or infective particles carried by means of the subarachnoid fluid from the cavity of the brain to the vaginal sheaths surrounding the nerve. This is a likely cause, but as there are many conditions in operation at one and the same time in lead poisoning, it is impossible to fix definitely upon one thing to the exclusion of others. Meningitis, however, I do exclude. Lead salts, or the consequences of their presence in the system, have a special irritant action upon the retina, optic nerve, and brain, and with this there is well-marked intracranial pressure, which cannot but play an important part in the development of neuro-retinitis. On examining the brain in cases of acute lead poisoning, I have been struck by the dryness, firmness, and pallor present, and the decidedly contracted state of the arteries, that therein may lie an explanation of the causes of optic neuritis. As bearing upon this, the observation of Schreiber is interesting. A patient lay for several days in a state of profound coma, with retracted abdomen, in lead poisoning. On ophthalmoscopic examination the retinal arteries were seen to be extremely narrowed. After inhalation of nitrite of amyl this contraction of the arteries disappeared, as also some of the other symptoms. Each time the nitrite of amyl was inhaled this change in the calibre of the vessels occurred.

Occasionally lead encephalopathy is ushered in by hysteria. When this occurs the medical attendant may be entirely thrown off his guard. I have seen a young woman, a lead worker, who was the subject apparently of ordinary hysterical convulsions, die from acute lead encephalopathy within two days. Mr. Baumgartner, who has medical charge of lead factories in Newcastle, tells me that he has seen this on a few occasions. It was Jaccoud who introduced the comprehensive term of cerebro-spinal saturninism,

so as to include the great variety of nervous symptoms met with in lead poisoning. The presence of anæsthesia has rendered the diagnosis of lead poisoning difficult. George Guinon has collected several cases of hysteria occurring in saturnine poisoning. In these there have been the combination of symptoms of organic and functional disease. Hysteria may be the only symptom, therefore, of saturnine poisoning. Charcot has drawn attention to the hysterical nature of a large number of the so-called anæsthesias, even when they occur in the male. It was Debove and Achard, however, who first employed the term toxic hysteria to indicate cases in which the neurosis was developed under the influence of intoxications. To them hysteria was only a symptom of saturnine poisoning. Letulle, admitting the identity of saturnine and ordinary hysteria, maintains that lead only prepares the soil for the development of the neurosis in subjects already predisposed. That predisposition, according to Guinon, is heredity.

Of the mental symptoms produced by lead poisoning, I would mention delirium met with during the course of acute encephalopathy, sometimes so violent as to amount to acute mania, and noticed, too, in the late stage of the disease when the kidneys are affected. This delirium, as Dr. Alexander Robertson noticed, is not attended by rise of temperature, and is therefore not due to meningitis. In one of my own cases there were the symptoms and delusions of general paralysis and distinct meningitis with subarachnoid effusion was found, post mortem, in the neighbourhood of the fissure of Rolando. Dr. Hale White has reported similar cases. I may safely say that saturnine poisoning sends few patients to the asylums. In the Waterford Asylum Report for 1871, Dr. Maccabe recounts a case of monomania and depression arising from lead poisoning in which the symptoms of mental derangement disappeared as the patient recovered from the effects of the poison. The patient was a woman, aged 50, who was a white lead worker. She exhibited the blue line on her gums; the extensors of her wrists were weak. Admitted into the asylum suffering from monomania, her insanity was disregarded, and she was put upon treatment for lead poisoning by iodide of potassium. The blue line began to fade and her hallucinations disappeared. She made a good recovery. In this case it is impossible to say whether any predisposition to insanity or other neurosis existed, but the fact that treatment was successful shows the imperative necessity of attending to the bodily conditions that underlie insanity. Dr. Campbell Clark, in the Journal of Mental Science, October, 1883, reports a similar case, but with an alcoholic as well as with a saturnine history, in which partial recovery took place. In one of my own cases there was a striking loss of memory, a circumstance which has also been noticed by Dr. Campbell Clark in one of his cases. My patient, a man aged 25, was admitted after having colic and a few epileptiform

convulsions; there was no albumen in the urine; he had a well-marked line on his gums, but there was neither paralysis, anæsthesia, nor hyperæsthesia; his knee-jerks were diminished. Several days after he had recovered from the convulsions he was unable to tell me what his occupation was, nor could he name the factory in which he was employed. On mentioning to him, however, a list of the factories in Newcastle, he was able to fix upon his own. As regards the name of the street he lived in and the part of the town in which the street lay, he was equally unable to express himself. He was quite conscious of this defect in his memory, and always asked for time to consider questions before replying to them. He regained his memory. (From Dr. Oliver's Goulstonian Lectures.) —*British Medical Journal, March* 21, 1891, *p.* 634.)

[See also *Synopsis* of this volume for the following articles by Dr. Oliver:—"Treatment of Lead Poisoning"; "Neuro Retinitis in Lead Poisoning"; "The Pupil in Lead Colic"; "The Pulse in Lead Colic"; and "On Anæmia in Plumbism."]

11.—ON TOXIC HYSTERIA AND ITS TREATMENT.

By Robert Saundby, M.D., F.R.C.P., Physician to the General Hospital, Birmingham.

So far as I am aware toxic hysteria has never been recognised in this country, and the only reference of the sort in any English journal is a brief account of a case of hemianæsthesia ascribed to lead poisoning, included by Dr. Allen Sturge in a paper published in the British Medical Journal for 1878, vol. i., p. 783. This case was seen by him in Paris under the care of Dr. Lépine; and it is entirely to French authorities that we owe the recognition of the curious relations that appear to exist between chronic intoxications —e.g., by lead, alcohol, &c., and certain hysterical phenomena. These have been almost exclusively observed in male patients, and under circumstances where, as in the case I am about to relate, an error of diagnosis might easily be made by anyone unacquainted with these relations, or at least great difficulty might be experienced in forming a conclusion as to their true nature.

John W. T——, aged thirty-seven, storekeeper, was admitted Jan. 2, 1890, complaining of stiffness, weakness, and numbness of the left leg, arm, and hand, and also of some numbness and stiffness of the right hand.

Previous history.—The patient remembers no illness, except a feverish cold with which he was confined to the house for a fortnight when he was seventeen, until twelve years and a half ago, when he had a quinsy, followed by what he calls "lock-jaw," for which he was treated in the Queen's Hospital. This got well, but about the same time a numbness or tingling sensation came on in the feet, legs, and thighs, which gradually disappeared. His

present illness began two years and a half ago with severe headaches, which were always worse on Sunday morning. On Saturday nights he worked until 11 o'clock, but on all other evenings he left work at 6 o'clock. After six months the headaches left him, but he began to feel a tingling in the left forefinger, which in the course of three months spread to all the fingers of the left hand, and by the fifth month had spread to the wrist. At the end of a year the left arm was affected by numbness, tingling, coldness, and loss of muscular power. The left foot and leg were then attacked by similar symptoms, which gradually reached as far as the knee. Six months ago the right hand began to be similarly affected, but in a much slighter degree. For the last two years his bowels had been very constipated, being opened about once a week, and then only by means of medicine. His work had been to serve out stores, and amongst these he had to give out white lead, which was kept in a barrel, from which he dug it out with a spade, causing a good deal of dust. He also had to give out turpentine, and to this he himself attributes his illness. He was constantly exposed to changes of temperature. He was a very moderate drinker, and denies having ever had syphilis.

Present condition.—The patient is a fairly well-developed, sparely nourished man, with an anxious expression of face. His left arm is firmly flexed at the elbow, wrist, and fingers, the thumb being adducted and flexed under the fingers. Teeth carious, no blue line or gums; tongue clean; appetite good; bowels confined; liver and spleen normal; heart normal; lungs normal; pulse 72, regular; respiration 18. He complains of frequency of micturition and that he cannot hold his urine so well as he did; quantity normal; contains no albumen, sugar, or bile, but there is $\frac{1}{135}$ gr. of lead to the pint. Generative functions normal.

Nervous system.—Special senses normal. No diminution of field of vision or colour-blindness in either eye. Plantar reflex diminished on the left side. Ankle clonus present on both sides, but more marked on the left. Patellar reflex exaggerated on the left side. Complete analgesia without anæsthesia over the left forearm and hand; elsewhere sensation unaffected; electrical reactions of muscles of forearm and leg are quite normal. Both the left arm and left leg are weakened. In bed he keeps his leg stiffly extended at the knee and flexed at the ankle to a right angle, and in walking he maintains the leg in this position, although, when asked, he can flex the knee, draw up the thigh, and extend the ankle. If one attempts to flex the knee, it is easy to feel that the resistance increases with the force used. There is very slight wasting of the muscles of the forearm and leg. Girth of forearms, right $9\frac{3}{4}$in., left $9\frac{1}{2}$in.; girth of calves, right 13 in., left $12\frac{3}{4}$in.

On Jan. 25th he was put under chloroform, when the spasm of the left arm became quite relaxed. The limb was put on a splint,

and when consciousness returned the spasm did not recur. He says his leg is "always worse in the morning (visit hour) and when anybody is looking at him." When asked to execute particular movements of his leg, or arm, the limb is often thrown into violent clonic spasms, which may extend to the whole of the same side and are attended by obvious nervous excitement.

March 2nd. His hand and arm are still cyanosed, but the spasm has entirely gone. He still walks badly, holding the limb in the same rigid position. The analgesia seems to be almost if not entirely absent.

This is a case of hysterical spastic hemiplegia. It may be distinguished from the spastic paralysis of organic disease by the following circumstances: 1. Primary spastic hemiplegia is unknown as a disease of adult life; there is no history here of an apoplectic seizure, but of a slowly progressing paralysis. 2. There was analgesia of the affected forearm; whereas in organic disease sensation would be unaffected. 3. The gait differs from that of organic disease in the foot being flexed instead of being extended in the talipes equino-varus position. 4. The spasm is not constant; when standing he can point his toes and flex his knee. 5. Very slight wasting has occurred in spite of the paralysis having existed more than eighteen months. 6. The spasm relaxed completely under chloroform, and has not recurred at the wrist and elbow. 7. The continued improvement which has taken place under simple treatment.

Some years ago I met with a very similar case, which I recorded at the time in the Birmingham Medical Review (vol. ix., 1880, p. 274). The patient, Joseph W——, aged thirty, was a house painter, who attended as an out-patient in May, 1880, complaining of pain in the chest. He had a strong blue line on his gums, and was treated for lead poisoning. Six weeks after coming under observation he came up to show his left hand, which was firmly clenched and cyanosed. He stated that three days previously, while he was at supper, both hands became spasmodically flexed so that "he could not let go his knife and fork." This passed off in about half an hour, but the following morning the left hand, as he expressed it, "went altogether." The fingers were firmly flexed on the palm, the thumb lying over the fingers. The skin of the affected hand was cyanosed, and felt colder than on the opposite side. There was slight numbness, but no anæsthesia at first. On applying gold to the affected arm for twenty minutes there was complete anæsthesia of the opposite (right) forearm and hand; while, on applying the gold to the right arm sensation completely returned, but disappeared in the corresponding parts on the opposite (left) side. This is the hysterical phenomenon described by Charcot as "transference." The muscles reacted well to faradaism, and under treatment by this current the power of extending the fingers

gradually returned, while the anæsthesia disappeared; but he began to complain of pain in the course of the sciatic nerve, with jerking of his leg. Soon after this he was brought into the hospital and treated in the surgery for what was regarded as a "hysterical" fit, and a few days later he returned with his hand as firmly contracted as ever. He then complained of a choking sensation, "as if a ball was coming up in his throat" (the familiar globus hystericus). Still later in the same year he was brought into hospital in a cataleptic condition, having had a fit in the street. His hand was easily moulded, placed on a splint, and fixed so as to maintain the extended position. After a few days the splint was removed, without the hand showing any tendency to resume its contracted state, and he was dismissed with a caution. He was known to have kept well up to December in the same year, after which time he was lost sight of. There could be no doubt as to the hysterical nature of this case, but, influenced by the writings of the French school, I was at first inclined to attribute the contracture and anæsthesia wholly to the lead poisoning. Later on, after he had been brought to the hospital in a hysterical fit, I learned he had been subject to such fits since he was fourteen years of age; he himself called the attacks "hysterics." Seven or eight years previously he had had an attack of tremor in the right arm. His family history was free from any evidence of neuropathic tendencies, but he was a house-painter before his first fit occurred.

In the light of the second case, and for the reasons already given, I have no hesitation in classing the first case as one of hysteria, but I had considerable doubt as to the importance to be attributed to the influence of lead, to which he had been exposed, and which the analysis of his urine showed had, to an appreciable extent, entered his system. Having looked in vain for any recent reference to the subject in the books at my disposal, I wrote to Professor Debove, who eleven years ago published two cases under the name of "Saturnine Hemiplegia," and got in reply a reference to a more recent paper of his own, which I have not been able to obtain, and to a pamphlet by a Dr. Hischmann, entitled "Intoxications et Hystérie," in which may be found a very clear account of what has been written on the relations of hysteria to chronic poisoning by lead, alcohol, and mercury. It seems to be now fully admitted by Professor Charcot and his followers that the nervous phenomena are truly hysterical and depend upon a fundamental hysterical diathesis. The part played by the poison is now regarded as merely that of an exciting cause. In reference to this Dr. Hischmann says: "It is even permissible to ask whether, in the absence of the poison, the hysteria would have shown itself? The question is difficult to answer, but one may suppose that, had there been no poisoning, it would have probably found some other exciting cause, such as a traumatism or a vivid moral impression."

Dr. Hischmann especially points out that these hysterical paralyses cannot be confounded with true toxic paralyses, as the electrical reactions, as we found in the present case, are always normal, whereas it is well known that in true toxic paralyses—e.g., in lead palsy—the faradaic contractility is more or less lost. Besides the symptoms described, cases have been recorded of apoplectic and epileptic seizures, transitory aphasia, hemianæsthesia, oculomotor paralyses, unilateral blindness and colour blindness, mutism, and even paralysis of the extensors of the hand and wrist simulating in its localisation the ordinary drop-wrist of lead palsy, yet all of these of a hysterical nature. It is remarkable that this association of hysteria with lead has been almost exclusively observed in men, so far only one female case having been recorded.

Prognosis.—A cure may always be looked for in all hysterical affections, but it may be a long time coming. It is of the greatest importance to be sure of your diagnosis, and then to insist upon the essentially curable nature of the disease.

Treatment.—The treatment of these cases should be two-fold. By the administration of iodide of potassium we may promote the elimination of the lead which has accumulated in the system, while, perhaps, acting through the imagination, we seek to get rid of the motor trouble. Several of the French cases have been cured by the application of a large magnet to the affected side, and in several cases the characteristic phenomenon of transference, or passage of the analgesia to the corresponding limb on the opposite side, has been observed. Others have been cured by the douche, others, again, by a weak galvanic current, especially when applied to the skin by means of a brush electrode. We have tried the douche for our patient, and he has greatly improved under it; he is now getting galvanism daily. He has also taken a mixture containing iodide of potassium and magnesium sulphate. We have not used isolation and massage, the value of which we have so often demonstrated in female hysterical patients, because we have no male isolation ward in which it could be carried out, but we have no doubt it would prove equally effective.—*Lancet, Jan.* 3, 1891, *p.* 2.

12.—ON THE ANÆSTHESIAS OF HYSTERIA.

By Charles S. Dana, M.D., Professor of Diseases of the Nervous System in the New York Post Graduate Course.

[Dr. Dana's studies were made upon Thirteen Cases of Hysteria in Men and Women, of Traumatic and Non-traumatic Origin, notes of which are given.]

The most constant form of sensory anæsthesia in hysteria is a limitation of the visual field.

Next in order come disorders of the cutaneous sensations; and

of these the pain-sense is oftenest affected, then the temperature, and last the tactile sense.

The muscular and articular sensibility is rarely involved, and hysterical ataxia is rare.

The colour-sense is sometimes implicated, but the complete inversion of the formula was not seen; colour-blindness occurred in two cases.

The peripheral field very easily tires for colour, so that a patient who at first could recognise a colour in the outer limit of the perimeter, after a short time ceases to do so.

Limitation of the auditory field for high notes is common, and is usually associated with bone-deafness to some extent. Deafness to low notes is quite rare, but occurred in three cases. The auditory disturbances are much oftener observed in connection with hemianæsthesias.

The pharyngeal reflex is usually absent on the anæsthetic side in hemianæsthetic cases, but it was not absent on the sound side, nor was it absent with the less extensive bilateral anæsthesia of the skin.

The knee-jerk in hysterical hemiplegia was diminished or even temporarily absent. In paraplegia it varied.

Taste and smell were not lost except in hemianæsthetic cases.

The frequency of the anæsthetic symptoms may be summarised thus: 1. Limitation of visual field. 2. Cutaneous anæsthesia—(*a*) Pain. (*b*) Temperature. (*c*) Tactile. 3. Auditory disturbances: bone-deafness and limitations of field. 4. Dyschromatopsia. 5. Muscular and articular anæsthesia.

I will add a few words now regarding some of the special forms of anæsthesia.

The Cutaneous and Muscular Sensations.—The cutaneous anæsthesias are distributed quite often in zones or patches upon the extremities, and in the glove or stocking-like distribution. But they are also often unilateral.

The anæsthesia is more marked the more widely it is distributed, or the more rigidly it is confined to one side. Like hemiplegia, it may be deepest on the arm, and leave the leg and face before leaving the upper extremities. The profoundest types are nearly always associated with some paralysis and tremor, and when the muscular sensibility is involved the paralysis is still more surely present.

These facts all seem to point to a common cortical seat for motor and sensory functions.

The anæsthesia, if unilateral, may be transferred by hypnotic suggestion or cutaneous irritation. I was never able to do this in my cases, however; but I did succeed in removing the anæsthesia over certain areas by the use of metal discs, and this furnishes a test of its functional character.

The greater frequency of the loss of pain-sense in hysteria is, I think, a fact which other experimenters will confirm.

The temperature sense is more often disordered than actually lost.

The tactile sense is usually a little affected in most cases, but often remains relatively good long after pain-sense has disappeared.

Hysterical ataxia does, I know, occur; but it seems to be relatively rare, and was absent in all my cases. Even in profound types of hemianæsthesia with hemiplegia, the position of the limb may be appreciated by the patient.

In general, it may be said that the hysterical monoplegias and hemiplegias carry with them the profounder sensory disturbances. In hysterical paraplegia often no anæsthetic disorder is discoverable. Such cases are, in fact, rather functional spinal disorders than cortical or "ideal" paralyses like the hemi- and monoplegias.

Anæsthetic hysteria is usually associated also with much mental depression.

A word, finally, in regard to the methods and difficulties of the examinations. In making the tests for anæsthesia in hysterical persons the greatest care has to be taken. Patients are often refractory, or soon get tired and become perverse and untrustworthy.

The examination of the skin and deeper sensations does not present so much difficulty. The eye-test, however, requires extra care. It must be remembered that an apparent limitation of the visual field may be due to stupidity or perverseness, or it may be due to refractive errors, to optic atrophy, or other organic eye-disease. Ziem has asserted that it occurs in diseases of the nose and antrum (*Berl. klin. Wochenschr.*, xxv. p. 37, 1888; *Deutsche med. Wochenschr.*, xv. p. 5, 1889); Moravcsik (*Neurol. Centralbl.*, 1890, p. 230) shows that the visual field may, in hypnotised persons, be enlarged through the influence of cutaneous, auditory, or odorous sensations, and that it may be contracted by depressing, and enlarged by pleasurable emotions.

A point in visual examinations of the field, also of importance, is the intensity of the light. Persons with a contracted field for a white disc have a large field for a bright light; and by using bright-coloured lights very different perimetric charts will be obtained.

The symptom of contraction of the visual field, therefore, is one whose significance must be closely weighed.

I have made this examination in a large number of neurasthenic persons, and a few epileptics, and in a case of paralysis agitans and Basedow's disease; I did not find any limitation, and the investigations of others also tend to show that it is not found in the neurasthenias or the great neuroses other than hysteria.

There have not been many studies yet of the limitation of the auditory field, particularly for low notes. In testing here it must be remembered that some people are born deaf for high notes, and

that in ordinary partial deafness the hearing of high notes may be most impaired.

The test of hearing for low notes has been often made by me, and deafness rarely discovered, but it certainly is present sometimes. Bone-deafness usually accompanies the limited auditory field.

In conclusion, I have hoped to bring out some further facts which will give more certainty to our knowledge of the stigmata of hysteria, and enable us to speak with greater confidence of its existence.

The characteristics of hysterical anæsthesia are :—1. Its frequent presence in the retinal field, and its peculiar distribution here. 2. Its distribution on the skin, affecting first the pain-nerves, and its modification, disappearance, or transfer by metals, or suggestion, or cutaneous irritants. 3. Its peculiar involvement of the auditory nerve, causing deafness to high and even low notes, as well as its dulling the hearing generally. 4. The rarity of muscular and articular anæsthesia, except in connection with profound paralysis. 5. The involvement of the taste and smell.—*American Journal of the Medical Sciences, October* 1890, *p.* 373.

13.—ON THE REMOVAL OF THE GASSERIAN GANGLION FOR SEVERE NEURALGIA.

By William Rose, M.B., F.R.C.S., Professor of Surgery at King's College, and Surgeon to King's College Hospital.

F. M.——, aged sixty, was first seen by me on Aug. 19th, 1888, in consultation with Mr. Padman. At that time she was suffering from severe neuralgia, affecting chiefly the inferior divisions of the fifth nerve on the right side of the face. This had resisted ordinary local and constitutional treatment. Stretching of the inferior dental nerve was decided on, and this was done on the following day, the patient being anæsthetised. The nerve was stretched just above its entrance into the dental foramen; it was also divided at its exit at the mental foramen, both steps being effected inside the mouth. This was followed by considerable relief until March, 1889, when the pain returned with great severity. On March 19th the lower jaw was trephined and a disc of the outer bony plate removed, thus exposing the nerve in the dental canal. Half an inch of the trunk was excised. Partial relief followed this, and it was not until March, 1890, that I was again consulted, the pain being more severe in the original situations, and in addition the right side of the tongue had become excessively painful, indicating an extension of the mischief to the lingual nerve. On March 18th, the inferior dental and lingual trunks were cut down upon in the pterygoid region through an incision parallel with the zygoma, dividing the masseter, and then deepening and enlarging the sigmoid notch with the trephine and

cutting pliers—an operation which I have performed on several previous occasions, and one originally suggested to me and practised by Mr. Victor Horsley. Portions of both lingual and dental nerves were thus excised. The result of this was to produce numbness and loss of sensation in the right side of the tongue and in the integument covering the right half of the lower jaw; but unfortunately the pain which had occasionally manifested itself in the upper jaw and cheek became greatly intensified. It implicated the alveolar border of the right upper maxilla, where the agony was greatest, and extended up into the temporal region to the top of the head. The slightest touch upon the gum produced a shock of agony that was terrible to witness, and the sudden approach of anyone or the banging of a door was sufficient to induce a paroxysm. Opiates and other sedatives had practically no effect. It was quite evident that the superior maxillary nerve was involved, and the patient's sufferings were so great that some serious mental derangement appeared imminent. Taking into consideration the previous relapses after partial nerve excision, I decided to make an attempt to remove the Gasserian ganglion, as nothing short of its destruction seemed to hold out any prospect of relief. I also decided to remove the superior maxilla at the same time, for the following reasons: First, on account of the extensive disease which probably existed in the nerves contained in it (and this was amply borne out by subsequent investigation); secondly, the increased facility thus given for opening the base of the skull; and thirdly, in deference to the express desire of the patient that, whatever else was done, the side of the jaw where the pain was greatest should be removed. Accordingly on April 2nd, fifteen days after the last operation, assisted by Mr. Cheatle, the surgical registrar, and Mr. Penny, the house surgeon, the ordinary operation for the removal of the superior maxilla was in the first place performed, and when the bleeding had been arrested and the foramen ovale exposed to view, the pin of a half-inch trephine was passed into the foramen, which acted as a centre, and the ring of bone surrounding it was carefully sawn and lifted out. The Gasserian ganglion could then be seen lying upon the apex of the petrous portion of the temporal bone, a small Schall electric illuminator being of great help at this stage of the operation. The ganglion was loosened by gently passing an aneurysm needle beneath it, and removed in three or four pieces by the aid of a narrow probe-pointed bistoury and fine-hooked forceps, the dura being uninjured. The bleeding was slight. The incisions in the cheek were brought together in the usual way with interrupted sutures of wire and catgut, cyanide gauze was applied, and the eye carefully protected with a soft pad. The patient suffered somewhat from shock, but her general condition on the following day was satis-

factory. She, however, complained of heat and pain at the back of the right eyeball, which, on examination, showed considerable conjunctival congestion and chemosis. Next day this had increased, and was accompanied by haziness of the cornea, which subsequently ulcerated and eventually necessitated excision. In all other respects steady progress was made. The old pain ceased from the day of operation and has not since returned. She expresses herself as being in better health than she has been for years past. On Oct. 25th she was carefully examined by Dr. Ferrier, and it was interesting to observe that although sensation and taste are practically absent from the right anterior half of the tongue, it is distinctly present posteriorly. There is circumscribed anæsthesia of the right cheek and obvious wasting of the temporal, buccal, and other muscles on that side. The movements of the lower jaw are limited, probably on account of the operation in the pterygoid region. There is no paralysis of the facial nerve.

As far as I have been able to learn, this is the first instance in which the Gasserian ganglion has been successfully removed in the human subject. It is undoubtedly an operation of considerable danger and difficulty; at the same time I feel convinced that the severity of the symptoms and the hopelessness of being able to effect relief in any other way justified such a procedure. The loss of the eye is greatly to be regretted, and, it is to be hoped, need not necessarily occur in future cases. In the present instance the patient is more than contented with the immunity from pain which she now enjoys, and thankful to have gained it, even at the sacrifice of an eye. In any future case of the kind I should be inclined to stitch the eyelids together as an additional protection. —*Lancet, Nov.* 1, 1890, *p.* 914.

14.—ON THE MODERN TREATMENT OF SCIATICA.

By William B. Pritchard, M.D., Lecturer on Mental and Nervous Diseases, New York Polyclinic.

The domain of sciatica is a broad one, for, although it is to a certain degree modified by climatic influences and hygienic environment, it is common to all countries. The etiology of the affection has been, for many years, fairly well understood, a statement which is also true of the clinical history, though much new light has been thrown upon the latter phase of the subject by recent investigations of peripheral nerve diseases. This knowledge is the outcome of a study of the pathology involved.

The establishment of the fact that true neuritis is the pathological condition in certain cases of sciatica, has led, as might have been expected, to the belief on the part of many, that it is the *only* condition ever present. With such it is believed that the essential factor is always of an inflammatory character, and that the differ-

ence in clinical symptoms depends only upon the degree of inflammatory action. While there is much to support this view, I am one of those who believe that there are cases which must be still classed as neuralgic, rather than neuritic. There are certainly two very distinct clinical types to be met with, and it is difficult to reconcile them to a common pathology. In order to illustrate the difference, according to the type present, I append the following symptom-groupings, which will also serve for purposes of differential diagnosis.

Sciatic Neuritis.	*Sciatic Neuralgia.*
Causes: Wounds and tumours indicate neuritis rather than neuralgia.	Etiology same, except that constitutional states—as anæmia, malaria (?)—indicate neuralgia, unless bilateral.
Pain duller; occurring in paroxysms, and in intervals, paræsthesia of pricking, tingling and numbness.	Pain sharp and more constant. Paræsthesia rare, especially numbness.
Movements of limb, especially forcible extension, give pain.	Pain not specially aggravated by movements, if at all affected.
Anæsthesia rapid in onset at times and in limited areas.	Actual anæsthesia very rare. General numbness may occur.
May be swelling along course of nerve and tenderness on pressure.	No swelling. Pain, not tenderness, on pressure at certain points.
Trophic changes in skin, hair and nails. Trophic wasting of muscles.	No trophic changes. Slight wasting may occur from disuse.
Paresis or paralysis of muscles, with reaction of degeneration to galvanic current, may be present.	No paresis or paralysis. No reaction of degeneration.
Faulty position of body (Babinski, Nicoladoni) sometimes observed.	Faulty position quite exceptionally met with.

As with every other disease, classical types in sciatica are the exception, but sufficient data may be secured in nearly all cases to enable us to reach an approximately correct diagnosis as to the special form we may have to deal with.

The modern treatment of sciatica, based upon an enlightened pathology, represents a revolution in therapeutics, and varies radically with the type present. While many of the drugs and measures in use in former years are still indicated in the neuralgic type, the pharmacopœia of sciatic neuritis is an entirely new one. A summary of the most reliable of the modern anti-neuralgic and analgesic remedies will include phenacetine, antipyrine, antifebrin or exalgine, cocaine and osmic acid, the last two used hypodermically alone. Of these, phenacetine is by far the most reliable and satisfactory. Doses of seven and a half grains, given at four or six-hour intervals, I have found quite effective, though larger quantities may be given with perfect safety, if necessary. Exalgine I have found, after repeated tests, very unreliable. It is, of course, advisable to antagonize by proper medication any cachexia which may be present, and tonics, including change of air, will be found of value in all neuralgic states. A combination of iron, quinine, and arsenic, is a common formula, and answers quite well.

It is in the treatment of neuritis of the sciatic nerve that we have to note the most radical innovations in therapeutics, and the

greatest advancement in results. It is of primary and essential importance in these cases to look for and, if possible, remove the cause. This may be either mechanical and local, or constitutional. Among the local causes may be mentioned, in addition to wounds, strains and hip-joint disease, tumours of the pelvis, fæcal accumulations, uterine displacements, varicose veins, and aneurisms. Exposure to cold may also be cited as a local excitant, though it probably acts in a double capacity. Toxic conditions of the blood give rise to a local neuritis occasionally. Lead and arsenic among the metals, diabetic states, alcoholism, syphilis, and certain micro-örganisms, as in malaria, have been cited as causes. Bury, in an article published in 1888 in the Manchester Medical Chronicle, called attention to the frequent development of neuritis in association with tubercular phthisis and typhoid fever. Thrombic occlusion of a local bloodvessel may be the explanation in some of these cases. Removal of the cause, where the relationship is clear, is at times all that is necessary in the line of treatment. If this is not determinable, the treatment resolves itself into three cardinal principles—the relief of pain, the antagonizing of inflammation, and absolute rest of the part. Of these three, the last is most important. The patient should not only be put to bed and kept there, but he should be mechanically restrained from exercising the functions of the diseased nerve. This can be best accomplished by applying a splint, preferably a long hip-splint, extending from the axilla to the foot, so adjusted to the side of the body and leg as not to interfere with local treatment along the course of the nerve. The splint should be worn until the symptoms have disappeared or until the disease has passed into a chronic state, which is rare to-day in comparison with its former frequency. Inflammation is best antagonized by cold applications in the form of rubber bags filled with ice. In the few cases in which cold acts badly, hot applications may be substituted. They should never be alternated, however. This treatment, with morphine to relieve pain, is all that is necessary in the first stages. After the acute stage has passed, the cold applications may be dispensed with. Your active inflammation has subsided, and you have to deal with the mechanical effects produced by the morbid products of inflammation within the nerve-sheath. To hasten the absorption of this irritating material massage will be found most valuable. The manipulations should be gentle at first, once or twice daily, and continued from fifteen to thirty minutes. It is here that electricity finds its place by reason of its catalytic and alterative action. Galvanism is the form indicated, and the entire nerve should be included in the action of the current, which should be continuous, never interrupted. The *séances* should be short at first, and the quantity used should not exceed five milliampères or less. Should the case manifest any tendency to develop a chronic state, the current

should be increased, or it may be interrupted slowly, for its stimulating effect. The interrupted current should, however, be used in these cases with extreme caution.

I have found little benefit from so-called specifics in this form of sciatica. Turpentine, nitrate of silver, sulphur, cocaine, &c., have been monotonously disappointing. Iodide of potash, while theoretically indicated, has proven of little value in my experience except in one case in which there was a distinct specific history and cachexia. In this particular case, the recovery of the patient I attributed as much to the inunctions of mercury used as to the iodide.

Counter-irritants, while markedly beneficial in a small proportion of cases, are not at all certain. Nerve-stretching I believe to be absolutely valueless and a dangerous procedure, while in two instances in which section of the nerve has been done, in one the relief was only partial, the other not being benefited at all, while in both cases a semi-paretic condition remained more or less permanently.—*American Jour. of the Med. Sciences, Jan.* 1891, *p.* 24.

15.—ON MORVAN'S DISEASE.

By Archibald Church, M.D., Professor of Neurology in the Chicago Policlinic.

The first description of the diseased state which by courtesy and for convenience may be called "Morvan's disease," was made by Dr. Morvan, of Lannelis, in Brittany, and published in the *Gazette hebdomadaire de Médicine et de Chirurgie* in 1883, under the title of "Parésie Analgesique avec Panaris des Extremités Superieures."

Morvan's attention was first attracted by finding a painless whitlow. In his first paper (1883) he says:—"Twenty-five or thirty years ago a man of 60 presented himself, with a whitlow on one of his fingers. We made out a necrosed condition of the ungual phalanx and proposed to make an incision and extract the bone. As the patient gave his permission with reluctance, he was assured that the incision would be made like a flash, so that he would not have time to suffer. The cut, which was sufficiently free, was accordingly made, but what was our amazement to see the calmness of this man. Not a complaint! Had he been of wood it would have been quite the same. He affirmed that he had not suffered at all . . . Taking a pin, we thrust it into various portions of the hand and forearm, which were swollen, without causing distress."

Originally Morvan stated the three characteristics of this condition to be, 1. Initial pains of a neuralgic sort in the extremities. 2. The appearance of paresis and analgesia, mainly in the hands. 3. The appearance of successive painless and destructive whitlows. Subsequently he modified this dictum, as cases fell under obser-

vation in which sensation was not materially changed, or in which paresis was absent, so that the only characteristic to be insisted upon is destructive and numerous whitlows.

Frequently there is a history of neuralgic pains of long duration in the extremities afterwards affected, and this is followed by weakness. Sooner or later a felon makes its appearance and, depending upon the condition present as to analgesia, is painful or absolutely free from discomfort, though the swelling, redness, and ulceration may attain a destructive grade. Indeed, the tendency of these inflammatory disturbances is to produce more than an ordinary amount of destruction and mutilation. There is usually exfoliation of a part or the whole of the terminal phalangeal bone, and the upper ranks are not infrequently lost. The nail matrix is also affected, resulting in dwarfed, claw-like nails, or only slight horny protuberances may be left. When the analgesia is pronounced, an apparently exquisitely tender felon may give no pain upon manipulation and, as we have seen, not even resent the knife. In this condition the patients have frequently themselves picked out the bony fragments, the slight discomfort not leading them to seek surgical aid. Such fingers present a characteristic appearance. They are short and thick, and if the middle phalanx, or more emphatically if all the phalanges are lost, the presence of the stunted nail at the end of the stump is sufficiently noticeable. It appears as if the finger had been telescoped. In some cases other evidences of dystrophy are present. The flexures of the fingers and the palmar folds are liable to cracks and fissures which are difficult to heal, and may present thickened epidermic margins about an indolent ulcerated centre, comparable to perforating ulcers of the feet due to nerve injury, and not rarely found in tabes dorsalis. While the first felon may be painful, and marked by all the misery that usually attends them, succeeding ones are not, and, as a rule, both hands are eventually invaded. In one of Morvan's cases the lower extremity was finally implicated. Cases present from two to ten successive whitlows, and every digit may be mutilated by them. The tendency is to their symmetrical distribution. The hands become cold, dry, and subnormal in temperature, or may be the seat of profuse sudation and chronic swelling. Broca called attention to the fact, confirmed by Morvan, that the spinal column in over one-half the cases showed by distortions the tendency to dystrophy in osseous structure. The scoliosis or kyphosis, however, is usually slight in degree, and not accountable for any injury to the spinal cord. Indeed, it is a result of the implication of the cord, and another evidence of the impairment of the cord's trophic functions. As a rule, the convexity of the curvature is toward the hand first involved, which is generally the right in men, the left in women. The joints of the hands, wrists, elbows, and even the shoulders, are sometimes affected with a dry,

painless arthritis, and a condition analogous to the joint lesions of locomotor ataxia is developed. In several instances a slightly subnormal temperature has been persistently recorded even during inflammatory features of the malady.

Aside from the analgesia already mentioned, and which seems primarily to affect the deeper structures, there are usually well-marked and various impairments of cutaneous sensation. Tactile, pressure and thermic sensations, severally or singly, may be diminished or obliterated, or intact. No mention is made of hyperæsthesia, but the persistence of tactile sense with the complete loss of thermic and painful impressions, is said to be rarely or never present. The extent of these perverted areas of sensation seldom passes above the upper extremities, though in some cases the body is invaded more or less widely. The forearms and hands often present considerable muscular atrophy, and to the electric current manifest changed reactions indicative of nerve degeneration. Superficial and deep reflexes are not noticeably changed, nor is coördination materially modified.

Gombault's autopsy of Prouff's case furnishes all that is known of the anatomy of the disease, with the exception of some minor observations made upon the amputated extremities of the fingers, which furnished evidence of peripheral neuritis. This, the only case completed by an autopsy, was a woman of 56 years, who from the age of 12 had suffered from a series of whitlows which had caused considerable mutilation, marked by trophic troubles of the skin and muscles with errors of sensibility, all located in the hands. The spinal cord and peripheral nerves of the upper extremities were particularly examined. He says :— "The nerve lesions consisted in an exaggerated production of connective tissue, with degeneration and disappearance of a large number of the tubules. These lesions presented the sort of distribution attributed to ascending neuritis; that is to say, they were more marked at the periphery and gradually diminished as the body was approached. In the spinal cord the alterations were localized in the cervical region, and only implicated the posterior horns, the posterior columns, and a small portion of the central gray substance. All these parts were the seat of an abnormal and diffuse development of interstitial tissue with thickening of the arterial walls, and frequently with obliteration of the lumen of the vessels. Nowhere did this sclerosis assume the form of an isolated or separable tumour. Owing to the state in which I found the cord when I was enabled to examine it, I could not decide whether there existed accidental cavities in the middle of the central gray substance, analogous to those which characterise syringomyelia, or not. I am, however, rather inclined to admit the negative. Nor can I decide whether the cord change had been the cause, or only the result, of the lesions in the nerves.

The single point to retain from this examination, it appears to me, is the co-existence of lesions pertaining both to the cord and to the peripheral nerves."

It was on the same occasion pointed out by Debove that these lesions bore a striking resemblance to those of tabes. Charcot agreed perfectly with Morvan that the trouble is primarily in the cord, and that the trophic and sensory disturbances and the peripheral neuritis are all secondary to the central change, while others find an explanation of the cord lesion in the extremities and the pathological conditions found there.

The diagnosis of the disease in recent cases must often be difficult, but when the condition has been of long standing it is probable that ordinary attention and care, with a knowledge of its existence, will be quite sufficient for its recognition. A somewhat allied tropho-neurosis, localized and symmetrical scleroderma, may at first be confusing. When this condition is limited practically to the hands it gives rise to paresis, distortion and changes of a general nature in sensation, with atrophy, but there is no tendency to alteration, to the exfoliation of bone, and the peculiar analgesia above described as usual in Morvan's disease is wanting.

The course of the malady is extremely chronic, and as far as now known, practically beyond the influence of therapeutical intervention.—*Journal American Med. Ass., Mar.* 7, 1891, *p.* 330.

[See also "Morvan's Disease and Syringomyelia" by Dr. Church in the *Synopsis* of this volume of the *Retrospect.*]

DISEASES OF THE BLOOD AND ORGANS OF CIRCULATION

16.—ON PRIMARY DILATATION OF THE HEART.—ITS CAUSES AND PHYSICAL SIGNS.

By W. H. Broadbent, M.D., F.R.C.P., Lecturer on Clinical Medicine at, and Physician to, St. Mary's Hospital, London.

The mode of production of dilatation of the heart is highly complex; it is, I think, usually understood to be the result of a gradual yielding of the walls of the ventricles, either from their own inherent weakness or from undue resistance to the onward course of the blood. It is often supposed also, when dilatation exists, that it is an established and more or less unvarying or progressive condition. Both these ideas require modification.

All violent or protracted exertion is attended with temporary dilatation of the heart, which may go so far, even in strong and healthy persons, as to give rise to temporary murmurs. Loud murmurs so produced I have heard at the apex, over the tricuspid area and over the pulmonary area, in individuals who had no evidence of cardiac weakness at the time, and who developed no

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valvular or other cardiac disease for many years afterwards. A personal friend always had a loud systolic pulmonary murmur after hunting, which sometimes, when there had been a severe run, lasted two or three days. It is, again, not very uncommon for young and strong men to return from climbing in Switzerland with more or less dilatation of the heart, which may persist for weeks. This is usually when little exercise has been taken during the year, and considerable ascents or very long walking excursions have been made without sufficient preliminary training. Boat races no doubt give rise to temporary dilatation, but no instance has come under my own observation. I have, however, met with it as a result of training for races. It might, perhaps, be better to speak of distension of the cavities of the heart in these instances, rather than of dilatation.

But the circumstances which are capable of producing a temporary distension of the ventricles in a sound and vigorous state of the organ will be competent to give rise to dilatation when it is weak and flabby, and other conditions are present which tend to dilatation, and it is more likely that the weakly ventricles give way from time to time under stress and fail to recover perfectly, than that the yielding is gradual and continuous. In contracted granular kidney with persistent and often extreme arterial tension, dilatation at an early period is comparatively rare, which would scarcely be the case were continuous resistance to the emptying of the ventricle the most efficient cause.

In violent exercise the pulse in becoming extremely frequent also becomes extremely soft and short, the arterioles and capillaries are relaxed in order to facilitate the rapid movement of the blood which is necessary to supply fuel and oxygen to the muscles during exertion and the arterial tension is low. The resistance to be overcome by the ventricles is thus reduced to a minimum, which diminishes the liability to over-distension.

In the production of dilatation a common and important, if not a constant, factor is habitual high arterial tension. A second factor, less constant perhaps but more important, is inherent weakness in the ventricular walls. Sometimes one will predominate, sometimes the other. With these proximate causes, to use an old fashioned term, will co-operate very varied influences—exertion, excitement, chills, imprudence in eating and drinking, constipation, augmenting the stress on the heart; anæmia, anxiety and depressing emotions diminishing its power of resistance.

Acute dilatation of the heart is more common than is generally supposed. In a very large proportion of the cases admitted into hospital suffering from symptoms due to cardiac dilatation, there has been an acute aggravation of the affection from work or exposure, and under treatment a considerable diminution in the size and capacity of the heart is commonly observed. But cases

occur in which there is ground for supposing that dilatation has been induced at once in a heart not previously affected. The following example is selected as an illustration :—A boy was admitted into St. Mary's Hospital with extreme dilatation of both ventricles. He had had no previous illness, but had been underfed. Most of us in driving about London will be familiar with the appearance of lads in the scanty attire of the cinder-path, who are making use of the streets as a training ground for races, usually in the dusk of the evening, after working hours; perhaps, also, this time is chosen to avoid police interference. I have myself often been astonished at the pace and endurance of these athletes-under-difficulties. The patient had been training in this way, and had persevered in spite of shortness of breath, till severe symptoms set in. He died soon after admission, and the ventricles were found to be greatly dilated.

A certain degree of dilatation of the left ventricle usually occurs at the onset of acute renal disease, under the combined influence of the resistance in the peripheral circulation and of the enfeeblement of the heart. In other acute diseases this may happen. I have twice seen considerable dilatation of the heart in mumps attended with collapse and cerebral disturbance; in one case it was fugitive; in the other, seen with Dr. George Coates, it lasted some time and recurred afterwards. In both the arteries were tightened up, giving rise to high tension and great resistance to the onflow of the blood. Whether the severe collapse and delirium which sometimes supervene as the acute symptoms are subsiding in mumps are always associated with dilatation of the heart it is not in my power to say.

A common cause of dilatation of the heart is anxiety. Nothing is more certain than the influence of prolonged mental depression upon the heart, and the sensation of aching, oppression, and weight which attends grief and anxiety, and which was considered to point to the heart as the seat of emotion generally, is indicative of an injurious effect upon this organ. It is almost literally true that people die of a broken heart. The combination of overwork, excitement, worry, and trouble often met with in city life, especially on the Stock Exchange or in mercantile or financial circles during a commercial or financial crisis, brings us many cases of cardiac dilatation among men, and it is needless to say that domestic anxieties—grief on account of children who have died or given trouble—have the same effect among women.

Among the special causes of dilatation of the heart—acting, no doubt, on pre-existing tendencies—which have come under my notice are injudicious hydropathic treatment, the so-called Banting method of reducing obesity, and inhalation of the fumes of Himrod's powder for the relief of asthma.

The physical signs which reveal dilatation may be described

together with the pulse. The pulse in advanced dilatation of the heart is usually irregular in rhythm and unequal in force of beat, and is sudden, short, unsustained, and usually easily compressed; the artery at the wrist may be large or small. It will be specially large when there has been antecedent high tension which has dilated the arteries. The significance of a pulse of this character is not absolute, as all these characters may be present when there is no recognisable change in the walls, cavities, or valves of the heart, apparently from disordered nervous influence only. The pulse, again, need not be irregular in advanced dilatation of the heart so long as the patient is in repose and the breathing is tranquil and easy. The regularity, however, is easily disturbed by exertion or effort, or by bronchitis, or merely by deep breathing. In moderate and slight dilatation the pulse may be regular, but, while irregularity is the rule, there is no such constant relation between the degrees of regularity or irregularity of the pulse and the amount of dilatation of the heart as to make one diagnostic of the other.

In the examination of the heart, inspection and particularly palpation will be of the greatest importance. The visual examination will be directed to the situation and character of the apex beat and to the impulse of the right ventricle. Retraction or bulging of intercostal spaces, elsewhere than at the visible apex beat, will be noted. The apex will be displaced outwards and downwards, and it may be visible over a large area. Very commonly it cannot be seen at all, and the point of maximum visible impulse does not necessarily belong to the true apex. The right ventricle impulse will be diffuse, if recognisable at all, and as a rule it is inconspicuous.

Palpation in most cases of dilatation furnishes information which contributes more to precision of idea as to the actual state of the heart than any other branch of physical exploration. The right hand should be applied closely over the entire cardiac region, the palm over the right ventricle, the fingers, spread out and close together alternately, over the apex region. Distinct impulse over the right ventricle, while it indicates more or less obstruction in the pulmonary circulation, indicates also some degree of vigour in this ventricle available for compensatory work. A mere vibration has a converse significance. The first object of attention, however, will be the identification of the point of maximum impulse in the apex region, and a careful estimation of the area over which the apex beat extends, and of its force and character; whether, for example, it is a mere concussion of the chest wall or a more or less distinct thrust at any point. Further exploration will be made by pressing the fingers into the intercostal spaces around and beyond the point of maximum impulse, and it must be borne in mind that this impulse may not be the real apex beat, but the

impulse of the right ventricle. Sometimes impulse is detected much above the normal situation, in the fourth space perhaps as far outwards as the anterior axillary fold or behind it, or it may be concealed by the female mamma. It may be the left edge of the right ventricle resting on the interventricular septum which is here felt, or a part of the rounded apex of the left ventricle. According as the apex is capable of giving a distinct thrust or communicates only a diffuse shock, and, according as the beat is well defined and steady, or vaguely felt over a considerable area, will be the estimate of the degree of dilatation and of the thickness or thinness of the heart wall. Not infrequently neither impulse nor apex beat can be detected, or the impulse is so vague that it cannot be localised; unless this is due to overlapping lung, it indicates great weakness of the muscular walls of the heart.

By deep percussion the outline of the heart can be mapped out. It is more rounded in the apex region than normal, and the area of dulness is greatly extended to the left. When no impulse of any kind can be felt we may have to depend entirely on percussion for information as to the size of the heart. I have found continuous deep dulness outwards as far as the mid-axillary line and downwards to the seventh space, shown to be cardiac by the intensity of the sounds at the extreme limits, and, when the heart had gained strength, by an apex beat recognisable by palpation at the farthest point.

The characteristic modification of the sounds of the heart produced by dilatation is that the left ventricle first sound becomes short; usually it is also louder than normal. Probably from this change in the character of the left ventricle first sound it is almost always audible in the aortic area, contrasting in this with hypertrophy. It is audible also to the left of the apex beat. When no impulse or apex beat can be felt, the sounds, and especially the first, must be made use of to ascertain how far to the left the left border and apex of the heart have been carried by the dilatation, and in what degree the enlargement is due to dilatation or hypertrophy. Percussion, of course, maps out the deep dulness, and shows approximately the limit of the heart and its extension to the left, but the point of maximum intensity of the sounds and the area over which they are audible will corroborate or correct the idea formed as to the size of the heart from percussion, and percussion yields no information whatever as to the kind of enlargement, but leaves it to be supplied by the character of the sounds on auscultation.

Not uncommonly dilatation of the left ventricle is accompanied by and gives rise to a systolic apex murmur, obviously due to mitral incompetence. This is induced by imperfect accomplishment of the constriction of the orifice, which is part of the normal contraction of the ventricle, and which co-operates with the

curtains of the valves in preventing regurgitation into the auricle. Now mitral valvular disease is attended with precisely the same combination of conditions — incompetence of the valve and dilatation of the ventricle—and of physical signs—a systolic murmur and displacement of the apex beat with increased cardiac dulness. The prognosis is very different in the two cases, and it is therefore extremely important to distinguish between them. This cannot be done with any degree of confidence by means of physical signs alone, and the discussion of the diagnosis must be reserved, but it may be said that the presence of the left ventricle first sound in primary dilatation and its absence in primary valve lesion will sometimes be of great service as a factor.

There is nothing in dilatation of the cavities of the heart to affect specially and directly the second sound, but, in proportion as this condition of the ventricles impairs the propulsive energy of the systole the second sound will be enfeebled and the aortic second sound is usually weak as compared with the left ventricle first sound. The relative loudness of the sounds therefore enters into the considerations from which may be calculated the efficiency of the ventricle.

Very important information is often supplied by observation of the intervals between the first and second and the second and first sounds, the short and long pauses respectively. When, with dilatation of the left ventricle there is resistance in the arterioles and capillaries, which is very commonly the case, the interval between the first and second sound may be prolonged, and as this marks the duration of the systole it shows that the ventricle is endeavouring to cope with the difficulty and to complete its contraction. The short or systolic pause may be so prolonged as to equal the diastolic, or long pause, and the sounds thus become equidistant, the first also having become short and sharp, the only difference between the sounds is one of emphasis or of pitch, and it is often difficult to say which is which. The sounds may be compared when the heart is acting slowly to the ticking of a clock, when rapidly to the puffing of a distant locomotive.

On the other hand, the first and second sounds may be approximated, and as we cannot suppose that a dilated and enfeebled ventricle completes its systole in a shorter time than normal the only possible explanation is that it is quickly brought up short by the resistance in the arterial system and expels but a small proportion of its contents. This abbreviation of the systolic pause is therefore a serious indication of failure of the ventricles, and when carried to an extreme, so that the second sound follows the first immediately and almost seems to overtake, it is significant of immediate danger.

In two successive attacks of symptoms due to dilatation of the heart when the degree of dilatation appears to be exactly

the same, a difference in the length of the systolic pause is sometimes the chief, if not the only, point which makes a difference in the prognosis. The first and second sounds are spaced in the first attack, which is survived and approximated in the second, which proves fatal. (From Dr. Broadbent's Lumleian Lectures.)—*British Medical Journal, March* 21, 1891, *p.* 624.

17.—ON THE TREATMENT OF ADVANCED DILATATION OF THE HEART.

By W. H. Broadbent, M.D., Physician to St. Mary's Hospital.

In the treatment of advanced symptoms due to dilatation of the heart, we have to deal at the same time with defective propulsive power on the part of the ventricle, and damming back of blood in the venous system—the former being the primary and principal difficulty—and the indications are to relieve the ventricles of work and give them strength, and at the same time to deplete the venous engorgement.

This last object, must, indeed, be taken first. We must undo the consequences of the original departure from the normal condition backwards and reach causes through effects; the venous stasis and the distension of the right side of the heart being the ultimate effects.

Venesection, the most effectual means of relieving the right side of the heart, is very rarely applicable in dilatation. It is conceivable that under some pulmonary complications resulting from chill, the engorgement of the right ventricle and auricle might be such as to make blood-letting the less of two dangers; but, the initial fault being weakness of one or both ventricles, we cannot trust the heart to adjust itself to a rapid change of any kind, and the right ventricle may not be in a condition to take advantage of the relief afforded it. Usually, however, the venous engorgement is developed slowly, and the indications for venesection do not arise.

The application of six or eight leeches over the liver is safer, and it will usually effect all that can be done by direct abstraction of blood. The indication for this local bleeding is enlargement of the liver and, when this is considerable, it rarely fails to afford striking relief. Very frequently, for example, the patient, who has previously been tortured by sleeplessness, will sleep at once and sometimes for a night or two afterwards. The reason for selecting the hepatic region for the application of the leeches is simply that pain and tenderness felt there are relieved; it is not supposed that blood is drawn from the liver, or that the same amount abstracted elsewhere would not be equally efficacious. The leeches will be followed by a hot poultice, which, besides encouraging the bleeding, will bring blood to the surface. When the liver is not enlarged, and especially if the right ventricle impulse and sounds are weak, there is no advantage to be gained by leeching.

Concurrently with the application of leeches a purgative will be given, which will deplete the portal system at the same time that the leeching depletes the systemic veins. Afterwards this will be the principal means of keeping down the venous engorgement. In a large majority of cases, indeed, we have to depend entirely upon purgatives for this purpose, as abstraction of blood by any method is inadmissible. It is not a matter of indifference what purgatives are employed. The object of a purgative is not simply to carry off as much fluid as possible and so drain the tissues. This may be the case, perhaps, in ascites from cirrhosis of the liver; but in heart disease of any kind, and especially in dilatation, much more is to be gained by rectifying the balance of the circulation, when the kidneys will resume their function and remove the excess of liquid.

Purgatives, then, may be made to contribute to this; and before considering them further we must refer to the first object of treatment, the relief of the heart from work and the increase of its vigour. Of these we can be much more sure of the first than of the second; we can more easily and certainly diminish the resistance in the arterioles and capillaries than we can lend strength and efficiency to the action of the heart, and, without removing the obstruction in the peripheral circulation, it might only do harm to incite the heart—weakened as its structures are—to greater effort to overcome it. Now, mercurial purgatives have this effect of diminishing arterio-capillary resistance and of lowering arterial tension, and therefore of relieving the heart. The hypothesis by which, as it seems to me, this observed fact is best explained, is that mercury influences the liver chemistry and promotes the elimination of impurities which, when retained in the blood, give rise to resistance in the capillaries. But, whatever the explanation, the fact that the arterial tension is notably lowered by mercurial aperients is one which is confirmed by daily experience. It is remarkable how frequently the statement recurs in works on heart disease that other remedies often fail to act until a dose of calomel or other mercurial preparation has been given.

Mercurial purgatives, then, have the double effect of depleting the portal system, which relieves the enlargement of the liver and the distension of the right side of the heart, and of diminishing the resistance in the peripheral circulation, and so relieving the left ventricle of stress. Very commonly the best of testimony as to the beneficial character of the result is given by refreshing sleep. The disadvantage, if such it be, that less fluid is carried off than by hydragogue cathartics is often compensated by an increased flow of urine; and elaterium, gamboge, pulv. jalap. co., and the like, when repeated, give rise to great exhaustion.

Calomel, then, or blue pill or grey powder, should be given in doses of from 1 to 5 grains, according to the urgency of the case,

with colocynth and hyoscyamus or rhubarb, followed by some mild saline. After one or more full doses at the outset, a moderate dose may be given every second or third night. The acid tartrate of potash will often co-operate beneficially, both by its action on the bowels and on the kidneys.

The heart being relieved of work may be urged to more vigorous contraction by digitalis, strophanthus, spartein, squills, caffeine, convallaria, apocynum, the special heart tonics, with which strychnine may usually be combined with advantage. In a case of extreme suffering, digitalis may be given with ammonia, ether, and nux vomica; in a more chronic stage, with iron and perhaps strychnine. Sometimes an effect can be obtained by giving citrate of caffeine in a pill, at the same time with digitalis in a mixture, when singly neither seems to be efficacious. Squills, again, may be given with digitalis, as in the well-known pill with mercury, or in some liquid combination. Next to digitalis stands strophanthus, which is a most valuable alternative when digitalis seems to produce sickness, as is sometimes the case, or when it fails to exercise a favourable influence on the heart. Sulphate of spartein I have seen to be of great service when digitalis and strophanthus appeared to have exhausted their influence. Of convallaria I have little to say. Apocynum has, in one or two cases, seemed to carry off dropsy in a remarkable way, but one patient died suddenly when apparently just well.

It is not necessary to go into greater detail with regard to these remedies. Throughout a case of the kind the medical man has to fight, so to speak, with both hands, and continuous watchfulness will be necessary to meet the vicissitudes which occur, and many changes in method may be required, while the same principles are held in view.

Very commonly improvement takes place up to a certain point, and then progress seems to come to an end. This is a trying stage both to the patient and to the medical man. Change of remedies and new combinations must be tried, both in regard of the aperient and of the tonic, not frequently and capriciously, but with careful study of the results and due allowance of time for obtaining them. Sometimes it does good to suspend all medicines for a few days and start afresh. Under these circumstances, again, it may be of the greatest service to drain the fluid from the legs, even when the extent of the œdema is not such as actually to call for it. The good result of removing an ascitic accumulation, should this be present, may be still more striking. Even a moderate amount of effusion in the pleural cavity, such as we should not think of dealing with under ordinary circumstances, should be aspirated. A straw may turn the balance either way, and a very slight obstacle may prevent the heart from regaining control over the circulation. It is not always desirable to postpone the removal of

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fluid till the particular conjuncture described arrives; it may be an urgent necessity at a very early period. Usually, however, it is prudent to give remedies a chance before resorting to puncture or paracentesis. As regards the method of drainage to be employed, Southey's tubes are, in my opinion, much the best, whether for œdema or ascites, but particularly in case of ascites.

The feeding of the patient through the long course of treatment will be a task of extreme difficulty. We have to contend with nausea and distaste for food amounting to disgust; sometimes the sufferer positively cannot swallow anything requiring mastication. The object to be held in view is to keep down the volume of the blood while maintaining its quality. A small amount of solid or semisolid food should be taken about every three hours; when the patient is not too ill to take his meals at the accustomed times it is a great encouragement to him to be allowed to do so, and he may then eat what he can of fish, fowl, tender meat, game, milk puddings. When the amount is small the regular meals may be supplemented by intermediate nourishment, such as a beaten-up egg, a little milk, or perhaps a small cup of strong soup or beef-tea, or a little beef or chicken jelly, or meat extract. Soups and jellies have the disadvantage of containing little proteid and much liquid, but they are stimulants to the flagging heart. Potted meat sandwiches are a great resource, and the pulp of raw beef-steak can be given in this form, disguised by cooked meat or concentrated gravy. A German physician of my acquaintance tells me that he frequently feeds his patients, suffering from cardiac dropsy of the kind under consideration, entirely on raw ham, and has great success. The amount of fluid must be restricted as far as possible, especially that taken with food. Stimulants are usually imperatively necessary, but should be kept within limits known to and defined by the medical man. The patient is under a great temptation to resort to them for the relief of faintness, exhaustion, and nausea. Cream of tartar drink may be taken to quench thirst between meals, and in some cases a copious draught of hot water once or twice a day will run through the system rapidly and wash out the organs and tissues without augmenting permanently the volume of the blood or adding to the dropsy. When this is tried it must be ascertained definitely that the amount of urine is correspondingly increased.

A question which arises in almost every severe case is whether the patient must be urged to remain in bed or allowed to get up. Bed is undoubtedly the best place for him at first, during what may be called the crisis of the attack, for many reasons; the rest and warmth protect the heart from the strain of exertion and changes of temperature. On the other hand, the dyspnœa is usually worse in the recumbent posture, even with the shoulders raised, and may be intolerable unless the legs are allowed to hang down; not infrequently it is simply impossible for the patient to remain

in bed. A suitable chair, therefore, is always necessary, with support for the elbows, shoulders, and head, which can be taken advantage of in turn in the frequent changes of position to which the patient has recourse to ease his breathing or elude discomfort, and the quickness and ingenuity of the medical man or nurse in devising expedients may greatly alleviate his sufferings. A bed table or other form of support, upon which the patient may rest his arms or elbows and head when leaning forwards while sitting in his chair, will often be very useful. A patient will frequently sleep better in this position than in any other. Perhaps the most common state of things is that the patient is up during the day, and tries to spend more or less of the night in bed. When he cannot at once bear to go to bed at night, he may undress and sit in his chair wrapped in blankets near the bed for a time, where he will often, after a nap or two, be able to lie down and sleep.—(From Dr. Broadbent's Lumleian Lectures.)—*British Medical Journal, March* 28, 1891, *p.* 686.

[See also *Synopsis* of this volume for articles by Dr. Broadbent on "Some Elements in the Prognosis of Dilatation of the Heart"; "Some Special Causes of Dilatation of the Heart"; and on the "Treatment of Cardiac Hypertrophy."]

18.—ON THE MANIFESTATIONS AND PHYSICAL SIGNS OF FATTY DEGENERATION OF THE HEART.

By W. H. Broadbent, M.D., Physician to St. Mary's Hospital.

There is very little that is characteristic in the symptoms of fatty degeneration of the heart. In a large proportion of cases the subject of this affection has had no ailment which has led him to consult a medical man, when he is overtaken by sudden death during exertion or excitement, or the administration of chloroform, or after a full meal. Or the excitement or exertion may be passed through safely, and death follow some hours later, next day even. Rupture of the heart is one mode of termination, and this may take place on very slight provocation. Sometimes the patient has been engaged in his usual avocation up to the moment of its occurrence. In one case which came under my observation, an old gentleman of quiet retired habits, with nothing beyond the weakness incident to age, was heard to knock at the wall against which his bed was placed, and was found dead, the bedclothes scarcely being disturbed. A neat slit was found in the left ventricle near the apex close to and parallel with the septum.

The bearing of such occurrences on prognosis is direct and simple. No doubt in many cases of sudden death there have been warnings which the patient has ignored or has not spoken of. These will sometimes be acknowledged in the course of examination when they have not been mentioned.

When the course of the disease has been sufficiently chronic to permit of the recognition of symptoms, which in my experience is chiefly when the degeneration is secondary to change in the coronary arteries or to old-standing hypertrophy, with or without dilatation, they will be such as are produced by a slackening circulation, and they are not so different from those attending dilatation as to permit of any distinction being drawn between the two conditions in an early stage without physical examination. There may, perhaps, be greater fluctuations in dilatation, though even in degeneration there may be great temporary improvement under care and treatment. In advanced stages characteristic differences make their appearance. The symptoms of advanced dilatation have already been described; those attending degeneration are evidences of heart failure of another kind. A noteworthy point is that well-marked dropsy is rare, and probably never occurs in uncomplicated degeneration. The significance of this is that the special effect of the disease is defective pressure in the venous system; and it is to this are due the syncopal, apoplectic, and epileptiform attacks, which, together with angina pectoris, are the most characteristic later effects of fatty degeneration.

The syncopal attacks vary greatly in intensity. So far as they have come under my observation, they have been marked rather by duration than intensity, and have rarely been so complete as to be attended with absence of consciousness; they have usually been accompanied by prolonged coldness of the extremities and of the surface. I have not met with instances of sudden and complete loss of consciousness and immediate recovery as in dilatation. These syncopal attacks are very significant, and are often premonitory of fatal syncope.

The apoplectiform seizures are very remarkable, and in the absence of history and without examination they are not distinguishable from the apoplectic condition resulting from cerebral hemorrhage. The patient is unconscious; the respiration, if he is allowed to lie flat on his back, may be stertorous—though stertor, after the teaching of Dr. Bowles, ought to be eliminated from the symptomatology of apoplexy—and there may be hemiplegia, though this will be fugitive. Cheyne-Stokes breathing, which was first observed in connection with fatty degeneration of the heart, has not been present in the few cases which I have actually seen in the apoplectiform state, while I have met with it in a very large number of cases of uræmic coma and in connection with serious consequences of high arterial tension. On examination of the pulse and heart, however, it will be clear that there cannot have been sufficient pressure in the arteries to rupture even the most degenerate vessel, and, on the other hand, thrombosis or embolism is not competent to produce unconsciousness of the character and duration of these attacks. According to

my experience, the patient is never quite the same after an apoplectiform attack; he is feebler in mind and body, and sometimes increasingly liable to syncopal attacks.

The epileptiform attacks are not often violent, but resemble *petit mal* rather than a typical epileptic fit; while, however, the convulsion may not be severe, there is profound unconsciousness—not like epileptic coma, but of a syncopal character—and the pulse may be extremely infrequent, sometimes less than 20 in the minute. In my judgment, the heart failure manifested by the slow pulse and the consequent arrest of the cerebral circulation are the cause of the fits, and it is not the epileptiform attack that affects the action of the heart.

By the time any of these forms of attack occur the diagnosis of fatty heart is usually sufficiently clear; but I have had under observation a case of very slow pulse with *petit mal*, in which the strength and volume of the pulse and the degree of impulse of which the heart was capable precluded the idea of advanced degeneration.

Is there anything characteristic in the appearance of a patient suffering from fatty degeneration of the heart? A greasy state of the skin with a sallow pallor of the face has been described, but nothing of the kind is present in a large majority of the cases. Many of the subjects of the disease retain the look of health for a long time, and even up to the moment when the heart ceases to beat. The cause may be local, and, even if a tendency to general deterioration of the tissues is present, the change mostly advances so much more rapidly in the heart than elsewhere, that there is no time for it to become conspicuous in the skin. The picture appears to have been drawn from cases of a universal chronic degeneration of vessels and heart.

Pulse and Physical Signs.—The most constant and significant feature of the pulse is that it is short and unsustained. The size of the artery at the wrist and the condition of its walls may vary greatly. When the arterial coats are healthy they are apt to feel extremely thin. The pulse rate may be regular and about normal, or extremely irregular both in force and time, and it may be frequent or slow. A very slow pulse with extreme low tension is most characteristic, but then it is the most rare.

The physical signs may be described as negative. Unless degeneration has attacked a heart already enlarged the size will be normal. If the fatty change is at all advanced impulse can neither be seen nor felt, or, if perceptible, it is only as a faint vibration. A heart in this condition is incapable either of giving a distinct push or of maintaining continuous pressure in the arteries. The sounds are weak, sometimes so weak as to be almost inaudible; but except that the first is short, there is nothing abnormal about them; the intervals, again, are usually normal. The very absence of murmur,

or of conspicuous modification of the sounds or intervals, and of disturbance of the relation between the two sides of the heart, or of increase of dimensions, when symptoms of serious slackening of the circulation are present, and especially when there have been anginal, or syncopal, or apoplectic attacks, adds gravity to the case.

But a weak, short, unsustained pulse is common as a constitutional peculiarity, or may at any period of life be simply a result of general debility, and impulse and apex beat may be entirely absent, and the sounds may be short and weak. In young people there is no danger of such weakness being taken to be indicative of degeneration of the heart, but it may arouse anxiety after middle age, especially if there is also irregularity.

It is important to be able to distinguish between functional weakness of this kind and weakness arising from organic disease. Usually this is accomplished by making the patient walk briskly. A few steps will often be sufficient. If the heart is sound it rises to the occasion. The pulse, and beat, and sounds are all more distinct, and strong, and regular, whereas the fatty heart "goes to pieces," and the pulse becomes irregular and shorter than ever, or may even disappear.

Until the disease is far advanced the diagnosis of fatty degeneration of the heart is not easy, and is scarcely to be made without more than one opportunity of examination. When the diagnosis has once been made the prognosis, for the most part, can contemplate only one result; a fatal termination is merely a question of time and circumstance. Excluding cases in which death has been sudden without warning, the shortest period in my experience over which characteristic symptoms have extended, together with recognised physical signs, has been about six weeks; several patients have survived the diagnosis two years before justifying it by dying suddenly. But circumstance as well as time enters into the question; a slight effort, or a fall, a little hurry or excitement, too hearty a meal, an attack of flatulent indigestion or constipation, a chill, may hurry on the fatal termination and, on the other hand, judicious care may postpone it till the heart is completely worn out and comes to a standstill.

The question must be asked, Is fatty degeneration of the heart ever cured or arrested? If the granular disintegration which is produced by typhoid fever is to be included under the term, the answer must undoubtedly be Yes. The heart may ultimately regain structural soundness and functional vigour when during the fever the first sound has been completely lost and the impulse has been scarcely perceptible; and when degeneration has been the result of other forms of blood poisoning or deterioration it ought to be possible, and now and then to occur, that recovery of the heart should follow a return to a healthy state of the blood.

More than ten years ago I came to the conclusion that a gentleman still living, aged at that time about 55, was suffering from fatty degeneration of the heart. Spare in habit, strictly moderate in eating and drinking, regular in taking exercise, and a great pedestrian, he rapidly lost strength without recognisable cause, became breathless on very slight exertion, so that he could scarcely walk slowly one hundred yards without actually stopping, either to get his breath, or on account of anginoid pain. On one occasion at least while sitting in his chair he became suddenly pale and unconscious, his head fell on his chest, and the jaw dropped. With this change in his health, the pulse and heart were extremely weak. He would never relinquish exercise, but continued to walk, however slowly and at whatever cost of pain and distress every day, exercising great self-command and measuring his strength very exactly. Little by little he gained ground, and he is now in fair health, but capable of very little in the way of work. It should be added that never at any time were his intellectual faculties at all affected. This case may have been an instance of arrest and partial recovery.

There is not much to be said on the subject of treatment. Life should be made as easy as possible for the sufferer. He should have as much sun and fresh air as his strength and the weather will permit, but on no account must he be exposed to severe cold. Such exercise as he is capable of is good for him, but he should never incur angina or extreme breathlessness. His food should be simple and his meals strictly regular, and the bowels should be kept well open. The rectification of functional derangements will be of service, and tonics may do good. (From Dr. Broadbent's 3rd Lumleian Lecture.)—*British Medical Journal, April* 4, 1891, *p.* 744.

19.—ON ANGINA PECTORIS,—ITS EXCITING CAUSES AND TREATMENT.

By W. H. Broadbent, M.D., Physician to St. Mary's Hospital.

While heart disease generally, of whatever kind, is remarkable for the almost entire freedom from pain—so that, when patients come complaining of pain in the cardiac region it is a presumption against the existence of any serious organic affection of the heart rather than an indication of any such change—there is one form of pain in and around the heart, angina pectoris, which is very definite and constant in its significance of disease and of danger. In a characteristic attack of angina, there is intense pain in some part of the cardiac region—in the left breast, or behind the sternum, or across the chest, at its upper part usually, but occasionally lower down, with radiation down the left arm. Accompanying the pain is a sense of utter powerlessness and

extreme fear and dread. The patient stands still, not daring to move or breathe, and feels as if he were in the act of dying. He will say afterwards that if the pain had lasted another moment he must have died. In no other condition is the physical agony of dying realised in anything like the same degree. The two elements of pain and sense of dying coexist in a true paroxysm of angina, and are almost equally characteristic.

The pain differs in character and situation and in intensity in different cases. Some sufferers will say it is indescribable—nothing in their previous experience suggests even a comparison; others speak of the pain as severe cramp in the heart, or as if the heart were gripped by an iron claw; while pain of a shooting neuralgic character, sometimes intermittent, sometimes persistent, seems to radiate from the chest to the left shoulder, the inner side of the arm, the forearm, and the ring and little fingers. Occasionally there is a sensation as of the wrist being grasped so tightly as to cause pain. With the pain in the heart there may be pain down both arms or shooting up into the left side of the neck, very rarely in the right arm only. Occasionally the pain may be felt first in the arm and seem to travel up to the chest, or may come in the inner side of the arm as a kind of warning of an attack. Another description of the pain is that it feels as if the sternum were being crushed back to the spine, or, again, as if the whole chest were being held in a vice. In other cases the pain is compared to a bar of iron across the upper part of the chest; in others, again, to a ton weight upon the lower part of the chest. The ramifications of the cardiac plexus and its communications with other nerves make the radiation of pain in all the various directions enumerated comprehensible, and the nerve of Wrisberg has been specially instanced as explaining the pain in the left arm, but no explanation can be given why in one case the pain is felt in one part of the cardiac region, and has some particular character, and takes a given direction down one arm or both or through to the back, while in another case the seat, character, and extension of the pain are quite different. It is not a pressure effect on the plexus outside the heart, neither heart nor aorta being necessarily enlarged, and extreme fusiform dilatation of the arch of the aorta being common without confirmed pain; and there can be no stretching or mechanical irritation of the ramifications beneath the endocardium at all comparable to that which takes place in acute dilatation of the heart. It seems to me probable that the pain is really central, and that the radiation of irritation giving rise to its extension takes place in the spinal cord.

An interesting point is that at the end of a paroxysm there is usually flatulent eructation from the stomach. The attacks are therefore very commonly attributed to flatulence, and distension of the stomach by food or gases may undoubtedly be, and often

actually is, an exciting cause, but more frequently the sensation as of wind on the stomach is only a part of the general commotion, and is due to communicated or sympathetic irritation of the gastric distribution of the vagus, the cardiac branches of which are primarily implicated. The escape of gas from the stomach is often a signal that the paroxysm is over rather than the means of bringing it to an end. Occasionally there is a vehement necessity to pass urine, although the bladder may at the time be empty. The duration of the attacks is very varied; sometimes it can be reckoned in seconds. Most frequently, perhaps, a paroxysm will last a few minutes, but I have known a patient sit in the same position almost through an entire night, not venturing to make the slightest movement and scarcely seeming to breathe, while the perspiration rolled off his forehead and came through his clothes. According to my experience, it is when the attack comes on in the night, without provocation by exertion or exposure, that it is protracted. When it is started by exertion it generally ceases soon after the exertion is left off.

While it would not be justifiable to say that a patient was the subject of angina pectoris unless he had had one or more paroxysms of intense radiating pain, associated with a sense of immediately impending death, it must be admitted that attacks of true angina occur which fall short of the typical development. For example, when a patient has been taught prudence by one or more bad attacks, he may, by standing still on the first warning, or by taking remedies, cut short the paroxysm, which will then have been represented only by the initial pain in the breast or arm without the mortal dread. It is possible, therefore, that before any characteristic attack has occurred, pains of a similar kind and intensity, disregarded by the patient or relieved by rubbing the chest or arm, may have the same significance as a fully-developed paroxysm. Again, a patient who has had attacks of true angina may cease to suffer pain, but may have attacks of what he calls faintness, in one of which he ultimately dies. These, which have lost their title to the name angina, have an equally serious significance.

The aspect of the patient is one of extreme anxiety or alarm. He is usually pale and often livid round the mouth, but it is said that sometimes the colour does not change. A cold perspiration usually bursts out on the forehead, and may be so copious as to drip off the face. The pulse, in the rare instances in which I have had the opportunity of examining it during a paroxysm, has been irregular, small, and weak. In some cases it has been reported to be very small from contraction or spasm of the arteries. In others again, it has scarcely been affected at all.

Great importance attaches to the exciting cause of the paroxysms. In the first instance they are almost always brought

on by exertion. The patient while walking perhaps more sharply than usual, or uphill, or against a wind, is more or less suddenly arrested by pain in the chest, with a feeling as if the heart were about to stop and he to fall down dead. On standing still the pain gradually passes off, and he is able to resume his walk, but only feebly and gently. For a while the attacks only occur when provoked by exertion, but more and more easily as time goes on, and they tend to become more severe. They are more readily induced when a walk is taken, or any imprudent exertion such as stooping, pulling open a drawer, pushing up a window, is made soon after a meal, especially after breakfast. External cold, again, predisposes to an attack, and exercise, which can be taken with impunity in mild weather, brings on a paroxysm if the air is cold and damp. Attacks, again, may be brought on by indigestion or constipation, apparently either through reflex disturbance of the heart, or as a result of pressure from the distended stomach or colon carrying the diaphragm upwards and obstructing mechanically the action of the heart and the expansion of the lungs. They are also liable to occur during the night, and may be induced in various ways. The contact of cold sheets may have this effect by causing contraction of the peripheral arterioles, and thus throwing increased work on the heart; or the upward pressure of the abdominal viscera, on assuming the horizontal position, may embarrass the heart. Not infrequently an attack comes on after sleep, when the vigour of the circulation has run down.

The central fact and essential significance of angina is that stress is put upon the heart, to which, for the moment, it is unequal. One of the main causes of such stress is persistent resistance in the peripheral circulation, or, in other words, habitual high arterial tension, and we owe to Dr. Lauder Brunton the knowledge that in many attacks of angina there is an aggravation of habitual high tension by a general contraction of the arterioles. But the habitual state of the arterial circulation may possibly be one of relaxed arterioles and capillaries and low tension, so that the heart has no abnormal resistance to overcome. Here sudden general arterial spasm would put the heart to greater stress than if the habitual tension were high, since the contrast between the work demanded would be greater.

When the paroxysms of angina can be distinctly traced to arterio-capillary resistance, or, when in the case of a patient subject to angina the usual condition of the circulation is one of high tension, the term "angina vasomotoria" may, perhaps, be appropriately employed. It is easy to imagine that stretching of the muscular fibres of the heart in the endeavour to overcome the resistance in the arteries might cause pain. But even when the vasomotor element is most potent, another factor must enter into the causation. Nothing is more common than high arterial ten-

sion, and it is met with in an extreme degree and produces fatal results without angina by ruining heart or arteries, or both, in hundreds of cases for one in which angina is present. Acute dilatation of one or both ventricles, again, in which stretching of the muscular fibres is obvious, frequently occurs without angina.

The prognosis of angina is beset with uncertainty. We can never tell when the next attack will come on, or whether it may not be the last. We are not, however, altogether without guidance, the elements of which will be an estimate of the relative predominance of the two chief factors in the production of the attack—whether inherent weakness of the heart wall, or obstruction in the circulation or other cause of embarrassment of the heart's action.

While the attacks only come on when provoked by exertion or excitement, or by flatulent indigestion (not, of course, taking the patient's word for the last-named cause), the hope may be entertained that by care in avoiding all known occasions they may be postponed indefinitely. The patient, for example, must not take exercise immediately after food, must never hurry or walk against a wind, and even on level ground must adapt his pace to his condition, and if compelled to go uphill must do very gently and circumspectly. If, further, there is habitual high tension in the pulse, this is at the same time evidence of obstruction in the arterioles and capillaries, which may be capable of mitigation and of some degree of vigour in the heart. So also will be accentuation of the aortic second sound, and still more any recognisable impulse or apex beat. Angina, again, in connection with aortic valvular disease, may run a very protracted course. It is when the pulse is soft and the heart is normal in dimensions, with imperceptible impulse and weak sounds—when, in fact, the results of careful examination are negative—that the greatest uncertainty and danger exist. The occurrence of unprovoked attacks and of nocturnal angina will emphasise this conclusion.

Treatment.—Arsenic has long been held to exercise some influence preventive of the paroxysms, and my experience leads me to agree with this view. Phosphorus, which belongs to the same chemical and therapeutical series as arsenic, has a similar influence, which has, in some instances, seemed to be superior. The great means of cutting short the attacks is that placed in our hands by Dr. Lauder Brunton—nitrite of amyl or nitroglycerine; and a patient subject to angina should never be without one or other of these remedies. They are, no doubt, greatly abused, and many persons, feeling secure of obtaining relief, neglect the important precautions by which the real disease, of which angina is only a symptom, may be held in check; and so, if they escape suffering, hasten on a fatal termination. (From Dr. Broadbent's 3rd Lumleian Lecture.)—*British Medical Journal, April* 4, 1891, *p.* 747.

20.—NOTES ON CERTAIN POINTS IN THE TREATMENT OF VALVULAR DISEASE OF THE HEART.

By P. H. Pye-Smith, M.D., F.R.S., Physician to Guy's Hospital.

The tranquillity of body and of mind, the avoidance of occasions of strain to the heart, and of injury to the lungs or kidneys, which justify a favourable prognosis, are also the most effectual treatment of disease of the heart. So far as drugs are concerned, it is remarkable that our most decisive successes are gained in what appear to be the worst cases. Aortic valvular disease and mitral obstruction in their early and uncomplicated stages are often little influenced by any direct medication; but when primary or secondary mitral regurgitation has taken place, when the patient is water-logged and jaundiced, with failing breath, scanty albuminous urine and fluttering pulse, then it is that digitalis is so invaluable a remedy. Taken frequently as an infusion, or in the admirable combination with squill and black oxide of mercury, which has been called "the infallible pill"—it is wonderful to see how the kidneys secrete, the dropsy disappears, the pulse becomes steady, and the patient is rescued from imminent peril.

There was once a cabman with advanced mitral regurgitation, who five several times, at varying intervals, came under my care at Guy's Hospital, each time dropsical and breathless. Four times he went out feeling well and able to return to work; on the fifth occasion the disease, so often warded off, proved fatal.

When the dropsy is large, and the urine very scanty, it is desirable to procure more rapid relief, and to give a better chance for the diuretic action of the pill by first tapping the abdomen if there is considerable ascites, or by what is more generally applicable, acupuncture of the legs. I have tried Dr. Southey's tubes as a substitute, but having seen ill effects in one case—though I have since used them with advantage—I think the plan of numerous incisions with a lancet, deep enough to go through the skin, is, as a rule, safer and more effectual. If the legs are first well smeared with cold cream, benzoated lard, or olive oil, no inflammation is set up, whereas I have seen carbolic oil, used with the same intention, produce a painful and troublesome dermatitis.

In such cases patients find the great advantage of the sitting over the reclining posture. Again and again I have seen a patient who has passed restless days and nights in bed breathe comfortably and fall into sound and refreshing sleep when placed in an old-fashioned high armchair with sides. The next morning much of the water which clogged his chest has gravitated into his legs, and he is ready to receive the full benefit of acupuncture.

The introduction of strophanthus, by Professor Fraser, as a substitute for digitalis in the treatment of cardiac disease, has

given us a useful addition to the Pharmacopœia. The action is very similar to that of the older drug, and the indications for its use are almost the same. It certainly has not superseded digitalis, which still remains the most valuable of all medicines in disease of the heart. But sometimes we need to change a prescription which has lost some of its efficacy by long continuance, and sometimes we meet with patients whom digitalis does not suit. In either case strophanthus is a most valuable alternative. Some of the best results of its use have, in my experience, been obtained in the treatment of mitral incompetence in children. Convallaria has a similar action, but is less powerful, and acts better as a diuretic than as a direct cardiac tonic. Citrate of caffeine also is often of much service.

In aortic valvular disease, uncomplicated by dropsy or venous congestion, digitalis is often uncertain and sometimes dangerous. Steel when it is borne, strychnine, and in many cases arsenic, are valuable drugs, but often the most effectual relief is afforded by careful attention to the diet, with a view to ensuring easy digestion, and to avoid flatulence. Soda and peppermint, the compound spirits of horse-radish, the compound tinctures of cardamoms and lavender, a rhubarb and ipecacuanha pill, euonymin and blue-pill —drugs of this kind directed to the digestive organs are often more effectual as cardiac sedatives than those which act directly on the heart. Many physicians find belladonna a valuable medicine in the treatment of aortic valvular disease. I confess that I have been often disappointed in its effects.

When there is much pain and headache, with symptoms like those of aortic aneurysm, or with attacks closely resembling angina pectoris, nitroglycerine and nitrite of amyl are extremely valuable remedies. In many such cases the application of leeches over the sternum, or small and repeated bleeding from the arm are more efficacious than any drugs.

Ether, particularly Hoffmann's anodyne, the spiritus ætheris compositus, liquor strychninæ, and the aromatic spirits of ammonia, are particularly useful in the cardiac dyspnœa and distress which accompany most cases of aortic disease.

One important point in the treatment of cardiac disease generally is the exhibition of anodynes and hypnotics. We have now a large number of them, but not more than we are glad to choose from. In advanced mitral cases with anasarca opium is usually counter-indicated, and it is seldom needed, for the distress is chiefly due to dyspnœa, and the best anodyne is that which relieves the dropsy. But in aortic cases laudanum or Dover's powder may often be given at night with great relief and without any bad effects. In such cases this form of opiate is, as a rule, preferable to subcutaneous injection of morphine. Bromide of potassium is not often effectual and its after-effects are unpleasant. Chloral

hydrate is unsuitable and sometimes injurious. In cases of restlessness and discomfort rather than actual pain a safe and useful sedative is the tincture of hyoscyamus in a dose of 40 or 60 drops in hot brandy and water.

The severe headache which sometimes accompanies the arterial anæmia of cardiac disease may tempt us to give antipyrin, but in such cases it is an uncertain and may sometimes prove a dangerous remedy. Laudanum and brandy is both more effectual and more safe as a substitute for chloral hydrate. Paraldehyde has of late years been much used. It often procures comfortable rest, and I have not seen any unfavourable effect upon the heart, but its taste is disagreeable and it often fails in its object.

Chloralamide, given in scruple doses, has often acted extremely well, and I have not yet seen ill effects from it except in a single case, where it probably produced an attack of dermatitis. In some advanced cases of cardiac disease, with restlessness and distress rather than acute pain, I have found sulphonal act extremely well rubbed up with a little tincture of lavender or curaçoa, and washed down with a wine glass of water; or it may be taken in hot milk, or prepared, in cachets. It sometimes fails, like other drugs, but, as far as I know at present, never does harm.

Another important point in the treatment of cardiac disease is the proper place of venesection. It has two important applications. No one who has watched many cases of aortic aneurysm can doubt the great value of moderate bleeding from the arm in relieving the worst pain of this terrible disease. In cases of aortic valvular disease, the symptoms are often very similar, and the same remedy seems indicated. The abstraction of four to six ounces of blood from the arm in these cases, I have sometimes found very effectual, but it is not nearly so certain a remedy as in cases of aneurysm. The other condition in which blood-letting finds its proper place is when the right side of the heart is distended, the whole venous system engorged, the surface cyanotic, and the pulse small, weak, and fluttering. In such cases the abstraction of a moderate amount of blood from the arm relieves the right side of the heart for a time, and gives the circulation a chance of recovery. I have sometimes seen this measure effectual in valvular disease, but more often have been disappointed of any lasting benefit, and believe that, on the whole, it is far less likely to be useful in primary cardiac disease than when dilatation of the right side of the heart is the result of obstruction of the pulmonary capillaries in cases of advanced bronchitis with emphysema or dilated tubes.

Before concluding I ought, perhaps, to refer to Oertel's treatment of valvular disease of the heart by regulated gymnastics, but I must confess that it does not appear to me to have either physiology or experience in its favour. The object is to produce com-

pensatory hypertrophy of the cardiac chambers in the same way as we strengthen the muscles of a limb by regular gymnastic exercises. But in the case of the heart, its gymnastics are already provided by the necessities of the circulation. There is no fear of its being idle, but there is great fear of its being taxed beyond its strength. So long as the general nutrition is good, the additional strain of an imperfect valvular apparatus will lead to corresponding efforts on the part of the muscle. By increasing the strain the conservative process is probably rendered more likely to cease and to be followed by dilatation. Moreover, we constantly see our patients practising Oertel's system without knowing it. It is but few who either can or will resign themselves to an inactive life with a damaged heart. They walk uphill, they lift burdens, they go quickly upstairs, and the result is in the majority of cases injurious. That patients with disease of the heart should be encouraged to take that useful place in the world which remains for many a man who is halt or maimed is most true, but their work must be mental rather than bodily, and less, not more, than that of sound men. If they will be content to work half time and half speed they may accomplish a lengthy journey, but to urge them beyond their powers is but another instance of *nimia diligentia medicinæ.—British Med. Journal, Dec.* 20, 1890, *p.* 1424.

21.—ON THE USE OF DIGITALIS IN HEART DISEASE.

By Fredk. P. Henry, M.D., Physician to Philadelphia Hospital.

With reference to the action of digitalis in heart disease, we may divide the heart's action into three stages: the first, or stage of *eusystole*, when compensation is well maintained, and it is unnecessary to give digitalis; in fact, under such circumstances, the drug is useless and may even be injurious. Shortly after this stage the symptoms may change, and the second stage, that of *hypersystole*, follows. In this the heart is endeavouring to overcome the valvular defect, and in doing so is exhausting itself. It is making a greater effort than is necessary, and is becoming hypertrophied, as evinced by displacement of the apex-beat. There may be at this stage a sensation of fulness in the head, tinnitus aurium and insomnia. Here digitalis is decidedly injurious. The third stage of cardiac disease is a condition of *hyposystole*. This begins with dyspnœa on slight exertion, or even during ordinary conversation, a sure sign that the circulation is approaching the venous type.

A division of the heart's action into these three stages explains certain discrepancies of opinion with reference to the use of digitalis in cardiac disease. Thus Grisolle has stated that digitalis is contra-indicated in all forms of stenosis; while, on the other hand, Lelion, another Frenchman, maintained in his inaugural

thesis exactly the reverse, viz., that digitalis was indicated in all cases of aortic stenosis. In 1877, Milner Fothergill, in a paper published in the British Medical Journal adopted a view similar to that of Lelion, so far as aortic stenosis is concerned. In aortic stenosis, he says: "By exciting ventricular contraction more blood is enabled to be passed in a certain time, and thus equilibrium is maintained." Niemeyer, however, took an opposite view of this question. The same discrepancies exist in regard to stenosis of the mitral valve. Niemeyer recommended its use in this condition; while, on the other hand, Potain says that in mitral stenosis digitalis may be long dispensed with. Finally, Gubler has declared it to be entirely useless in lesions of the mitral valve, whether stenotic or regurgitant.

Can these statements be reconciled, and, if so, in what manner? Certainly not by impeaching the testimony of these men who were authorities in their time. By considering the different stages in which the drug was administered we can arrive at an exact result. Hence the division of cardiac disease into three stages: in the first of which digitalis is useless and may be injurious; in the second it is injurious, and in the third it is invariably beneficial if the degeneration of the muscular fibres has not proceeded too far.

Some valvular lesions are more benign than others. Thus, mitral stenosis is the least dangerous, according to Austin Flint, while others assert that mitral regurgitation is the most benign. According to all, sudden death is more apt to occur in aortic regurgitation than in any other form of heart disease, and some go so far as to say that it is the only form that is likely to terminate in sudden death. Cardiac lesions may exist for many years with no symptoms, the patient dying of another affection. In these cases digitalis is not required. The indication for the employment of digitalis depends upon the condition of functional activity of the cardiac muscle. If it is able to perform its function, digitalis is useless. On the other hand, if the heart is acting with unnecessary strength, to overcome the effects of the lesion, use drugs such as the bromides, morphine, and aconite, associated with a bland diet, in which the only animal ingredients are milk and eggs. In the stage of hyposystole some one of the many preparations of digitalis may be employed. In the case under consideration we gave two drachms of the infusion every three hours, until the urine was very decidedly increased in amount, the pulse strong and regular, and the dyspnœa had entirely disappeared. In prescribing digitalis do not be disappointed if you do not obtain immediate results.

There are certain points connected with the action of this drug which by the inexperienced are at times thought to be the effects of the disease itself. For example, it sometimes renders

the pulse very unstable, slight exertion making it rapidly rise to a high point. Consequently the best effects of the drug are secured by keeping the patient quiet, not allowing him to sit up until the equilibrium is properly restored. When giving digitalis, compare the radial pulse with the cardiac beat. You will often notice that the latter is more rapid than the former. The heart is not strong enough to give rise to a beat at the wrist with every contraction, and sometimes this disproportion increases to two to one. This is supposed by some to be due to a separate contraction of the two ventricles. I reported a case in 1881 in which I think this condition existed. The sphygmogram showed two beats of the heart to one of the pulse, with a tracing which was taken over the heart.

The relative size of the two beats is what one would expect from the relative strength of the two ventricles. When we consider the arrangement of the cardiac muscular fibres, it seems almost impossible to have the ventricles acting asynchronously, but these cases show its possibility. This action of the heart has been attributed to the effects of digitalis, but the question is an open one. There is, however, a condition undoubtedly due to the action of digitalis. This is an irregularity of the heart called "*pulsus bigeminus*," two beats of the heart followed by a long pause, a condition which may continue for hours.

In this case the action of digitalis has been markedly successful. The patient has still signs of bronchitis, but there is no pulmonary œdema and no orthopnœa. The heart is acting with regularity, the murmur is present and stronger than on admission —a good sign. The urine is increased in amount and the appetite is good. Failure of appetite and other signs of digestive disorder are always present in the stage of failing compensation, so much so that "*cardiac dyspepsia*" is now recognised as a distinct morbid condition.—*Medical News, Jan.* 3, 1891, *p.* 2.

22.—OBSERVATIONS ON CHLOROSIS.

By Stephen Mackenzie, M.D. Physician to the London Hospital

In this form of anæmia the observations of Duncan in two cases have in the main been confirmed by all subsequent observers, namely, that the essential feature in the blood change is a diminution in the hæmoglobin capacity—an oligochromæmia. In many cases the red corpuscles are scarcely at all below the normal, whilst the hæmoglobin is reduced to from 60 to 30 per cent. In other cases, the red corpuscles are also deficient, but in these also the hæmoglobin is disproportionately reduced. Thus, two categories of cases are found in chlorosis, to the first of which Laache would give the name "pseudo-chlorosis," while the second he would call "true chlorosis." What is common to both is that the corpuscular worth is diminished. Whilst, however, this is characteristic of

chlorosis, it is not peculiar to it. In severe cases of chlorosis, the corpuscles undergo a notable diminution, constituting what some would designate chloro-anæmia. Thus Laache has published a case in which the corpuscles were as low as 2,440,000 (48.8 per cent.), Coupland a case with 2,090,000 (41.8 per cent.), Gowers a case with 26 per cent., whilst M. Hayem records a case in which the actual number of red corpuscles was 937,360 (18.7 per cent.). Another characteristic of chlorosis is the relatively large number of small red corpuscles of 3μ to 6μ, but they may be reduced to even 2.2μ (Laache). Though some large or even giant corpuscles are occasionally found in chlorosis, Malassez stands almost alone in stating that, as a rule, the corpuscles are increased in size in chlorosis. Poikilocytosis is sometimes present, as in the diagram exhibited, which is taken from a girl, aged 18, with 85 per cent. of red corpuscles, and 35 per cent. of hæmoglobin. In chlorosis there is little liability to hemorrhage, which we have seen stands intimately related with severe degrees of oligocythæmia. This applies to retinal hemorrhages, which, apart from inflammatory changes, are certainly rare. Papillitis and papillo-retinitis are, however, probably more common in this form of anæmia than in any other. Saundby and Eales found that, of fifty cases of chlorosis examined by them, 10 per cent. presented unequivocal evidence, and in a further 8 per cent., there was evidence of some degree of neuro-retinitis. Hirschberg was the first to note the occurrence of optic neuritis in chlorosis. Gowers has recorded several cases, and cases of double papillo-retinitis have been recorded by Mr. R. Williams and myself. In my own case, which is one of several I have seen, the corpuscular richness was 80 per cent., and the hæmoglobin only 30 per cent.

The existence of hypermetropia, as first pointed out by Gowers, increases the liability to inflammatory changes. Cardiac murmurs and venous hum in the neck constitute part of the clinical features of chlorosis with which all are familiar, and with them are associated palpitation and breathlessness on exertion. In speaking of the symptoms of anæmia in general, I have remarked that pyrexia is by no means uncommon in chlorosis. In some cases the pyrexia is considerable, constituting what has been called "febrile chlorosis." Hayem stated that chlorosis only assumes a febrile form when the globular richness, expressed in healthy corpuscles, is below $1\frac{1}{2}$ million. With regard to the urinary system, most authorities state that it is normal in amount, pale in colour, of low specific gravity, and contains but little urea and uric acid, and my own experience agrees with this. Dr. Hunter has shown that the urine in chlorosis in three cases he examined contained only 1.76 milligrammes of iron, whilst that of health averages 5.65 milligramme per diem. Further observations on the urine in chlorosis, clinical and chemical, are greatly wanted. The alimentary system very

frequently, though not invariably, shows signs of disturbance, and sometimes these are so pronounced that some would make a variety, "dyspeptic chlorosis." How far they are caused by the anæmia and how far by the conditions that give rise to chlorosis are much debated questions. Constipation is exceedingly frequent, and is believed by many to be causally related to chlorosis. Its absence in many cases, and the frequency with which constipation occurs in young people who are not anæmic, make the dependence of chlorosis upon constipation very doubtful, and I believe its importance has been considerably overrated. The nervous disturbances—"the irritable weakness"—of chlorosis are very characteristic phenomena, and to be explained partly by the anæmia and in part by the conditions that give rise to it. The age at which it occurs and the sex of the sufferers imply a highly sensitive and mobile, if not unstable, condition of the nervous system. As well known, chlorosis is frequently associated with menstrual irregularities, especially amenorrhœa; but it also occurs in those whose catamenia are regular, if somewhat scanty, and may coexist with excessive menstrual discharge. Leucorrhœa is very common in chlorosis, disappearing with its subsidence.

Chlorosis occurs almost exclusively in women, though occasionally cases are met with in young males. It is met with, especially between the ages of 14 and 24. All are familiar with Niemeyer's oft-quoted statement: "According to my observation, obstinate chlorosis attacks all young girls without exception, in whom the menses have appeared in the twelfth or thirteenth year, and before the development of the breasts and pubes." It is occasionally hereditary, and possibly congenital. The narrowing of the aorta, the thinning of the arterial tissues and irregularities of position of the arterial branches, described by Virchow, though not invariably present, point to developmental defects. The character of the blood, its poverty in hæmoglobin, comparative richness in other albuminates, the markedly renovating influence of iron, all indicate a defective hæmogenesis, a "hypoplasia" of the blood as well as that of the blood vessels (Immermann). Moreover, there is little or no evidence, clinical or pathological, of excessive hæmolysis. There is no drain upon the system other than that of menstruation, and this, in many cases, is suspended. On all of these grounds we are justified in regarding chlorosis as due to defective blood formation, often associated with, and possibly in some cases due to, disturbances in the generative system. Most probably both are due to some inherited or acquired developmental feebleness of the blood-forming organs rendering them unequal to the calls made upon them, which, treated promptly and properly in most cases, is of transitory duration, but which, more profound in degree or imperfectly treated, may prove a lifelong complaint.—*British Medical Journal, Jan.* 24, 1891, *p.* 165.

23.—ON THE TREATMENT OF ANÆMIA.

By Stephen Mackenzie, M.D., F.R.C.P., Physician to, and Lecturer on Medicine at, the London Hospital.

Anæmia depends upon either defective hæmogenesis or excessive hæmolysis, or upon the two combined. In *defective hæmogenesis*, whether the anæmia is idiopathic or symptomatic, it is essential that the diet should be ample to supply the pabulum from which the corpuscles and their hæmoglobin are prepared. It must be remembered that the food of ordinary life, in sufficient quantities, contains all the elements, including iron, that are necessary for blood formation. We must be careful to see to the condition of the teeth that mastication may be properly performed. A good amount of meat is desirable—as much as the patient can comfortably and perfectly digest. A small amount of stimulants—especially red wines, such as burgundy, claret, or port; or malt liquors, such as stout or light bitter beer, is often of service. The hygiene consists in securing the patient as much light—especially direct sunshine—and fresh air as is possible. The bleaching effects of darkness are seen throughout organic life. Gentle exercise in the open air, or driving, when the strength permits, is of importance, but, in severe degrees of anæmia, absolute rest is imperative and of the greatest service. In less severe degrees of anæmia longer hours than usual in bed, and the recumbent position for some hours in the day time, to save the enfeebled heart, are important matters in practice. A morning tepid sponge bath should be used. Suitable and sufficient, but not excessive or tight, clothing should be worn. Anæmic persons are usually sensitive to cold.

Iron is proved by every day clinical experience to be of the greatest value in anæmia, though objectors are still found to its being absorbed and acting on the blood. They believe that its good effects are due to its local tonic action on the stomach and intestine. That it is, in some part, absorbed has been proved by Rabuteau and many other observers. Much that is taken is undoubtedly not absorbed, and passes into the intestine, where it is converted into the sulphide or tannate, which cause the black stools of patients taking iron, and it is probable that much that is absorbed into the portal vein returns to the intestine with the bile. In the stomach and intestine, if not given in these forms, it becomes converted into a chloride or albuminate. It soon becomes incorporated with the red corpuscles, as it cannot be detected in the plasma elsewhere than in the portal system. I cannot refrain from quoting the following interesting remark of Dr. Mitchell Bruce, "The action of iron on the blood is almost unique of its kind: first, because its specific action is exerted, not upon the plasma, but upon the red corpuscle, and on

this alone, not on any other tissue or organ. Secondly, because the action appears to be nothing more than the combination of iron, as one of the constituent elements of the corpuscles with the others. In the case of no other metal can we speak so definitely of its *modus operandi*." It being accepted, as all clinical experience teaches, that iron does improve the character of the blood, we must next examine into how it accomplishes its effect. Systematic examinations of the blood in chlorotics and other subjects of anæmia show that usually its immediate effect is to increase the number of corpuscles without a corresponding increase in the amount of hæmoglobin, so that the first result may be a lowering of the worth of the individual corpuscle. By degrees, however, the corpuscles become more deeply impregnated with hæmoglobin, and ultimately they reach their normal value. It would thus appear that the influence of iron is first to stimulate the production of new or young corpuscles, and only secondarily does it add to the amount of hæmoglobin in the corpuscles. The practical matter that concerns us most is the determination of the best manner of administering it. Probably all forms are useful, and possibly the form makes no difference if enough can be given. The bland and non-astringent forms are tolerated in larger doses and for a longer time than the astringent forms. It is, again, a question whether ferrous or ferric salts are the most useful as hæmatinics. This is, in a measure, answered in the preceding paragraph, and, speaking generally, my experience leads me to the conclusion that the ferrous salts are to be preferred.

A few words on the method of conducting an iron treatment will not be out of place. I would remark it is exceedingly rare for patients to be unable to take iron in some form when it is really needed. Next, the pill form is the most convenient in the usual way. It does not blacken the teeth, is tasteless, the dose is easily augmented without modification of the formula, and is proved by experience to be thoroughly efficient. In cases where there are reasons for not giving it in pill, albuminate of iron, dialysed iron, Griffith's mixture, or one of the scaly preparations may be employed. Where there is much gastric disturbance this must be treated at the same time, but is no bar to the administration of iron. When the tongue is coated, flabby, and indented by the teeth, it is my practice to give an alkali and bitter mixture between meals, and iron in pills immediately after or with food. We may combine the iron with the citrate or bicarbonate of potash, and give the two together, but it is not in this way so convenient to regulate and augment the dose of iron. Dr. Lauder Brunton recommends the astringent preparations of iron when the tongue is pale and flabby. Where constipation co-exists, as it often does, there are several ways of dealing with it, dependent on its cause.

Dietetic measures should always be employed; but failing these we may combine the iron with an aperient in the form of a mixture, as the sulphate of iron and sulphate of magnesium, or the iron may be combined in a pill with aloes and myrrh. My own plan is, however, usually to give a saline aperient in the morning on rising. One of the natural purgative waters may be employed, or a drachm (or thereabouts) each of sulphate of sodium and sulphate of magnesium (with or without a drachm of chloride of sodium) in half a tumblerful of warm water.

In treating primary, especially chlorotic, anæmia, the best results appear to be obtained by pushing the iron in large doses, and it is on this account that the pill form is so convenient. We can begin with one pill three times a day, soon give two pills three times daily, and later in some cases give three pills for a dose. More than this is not usually necessary. No doubt much of this is squandered, not being absorbed from the digestive tract. Whether in these circumstances more is actually absorbed than when it is given in smaller doses, or whether it acts indirectly on the gastro-intestinal tract, as maintained by Buchheim, Kobert, and Reinl, is uncertain; but the fact that large doses act more promptly and efficiently is established by experience.

One more point of great importance which is often lost sight of. The iron treatment, in cases of chlorosis especially, should be persevered in for two or three months after the patient feels herself well, and often has a good colour. We have seen that the hæmoglobin remains deficient after the corpuscles have returned to about their normal number, and it is only slowly that the corpuscles arrive at their normal amount of hæmoglobin. Relapses in such cases are exceedingly common if the iron is prematurely discontinued. Laache, in a recent communication, has emphasised this fact, and pointed out that Niemeyer's statement, that three boxes of 96 Blaud's pills suffice to cure the most obstinate chlorosis, is very misleading.

We now pass on to the treatment of *Hæmolytic Anæmia*. Here theoretical considerations suggest that animal food should be sparingly given, since it has been pointed out in the first lecture that it is asserted that a diet rich in animal food increases active destruction of red corpuscles. Dr. Hunter has suggested a trial of a purely milk diet, or of a farinaceous and milk diet, and in the case in which he tried these, though the disease was in an advanced stage, a certain amount of improvement took place—the blood pigment disappeared from the urine, and the amount of aromatic sulphates was diminished. I shall certainly give a purely milk, and a farinaceous and milk, diet a trial. Alcohol does not, as a rule, benefit such cases, and, if given, weak spirit and water is the best form. As long as patients with pernicious

anæmia have the strength, they should get into the open air and sunshine, but should not tax their powers by exercise. They should adopt the recumbent position as much as possible, so as to conserve their powers, and put as little tax as possible on the fatty and weakened heart. We must remember, however, whilst combating the hæmolysis, not to neglect hæmogenesis, which is often struggling to maintain the balance. Sitting in the open air and sunshine in suitable weather, and carriage exercise, are therefore to be encouraged, the patient, of course, being suitably clothed.

Arsenic.—Amongst the great gains we have had in the treatment of anæmia in recent years arsenic stands in the first position. Various modes of administration have been adopted, but none is more efficient than Fowler's solution, in which form usually the maximum quantity can be exhibited. The dose, beginning with quite a small one—2 to 4 or 5 minims—freely diluted, and given with or directly after food, can be gradually increased until largish ones are tolerated. I believe the larger doses—10 to 15 minims three times a day—to be the most capable of producing good results.

In poisonous doses arsenic exercises a destructive influence on the red corpuscles, reducing the hæmoglobin and impairing its oxygenating powers. An interesting point in connection with the administration of arsenic is the fact that it sometimes produces bronzing or pigmentation of the skin. How this is brought about is a disputed point; but it is probable that it is by increasing the activity of the pigment-producing tissues. It is probable that the increase of colour of the urine in some cases of pernicious anæmia during the administration of arsenic is in some way connected with this action.

Quinine is sometimes useful in the pyrexial attacks of pernicious anæmia. Phosphorus has proved useful in one case recorded by Dr. Broadbent, but has failed to do good in others. The evidence regarding mercury is conflicting, but Keys has asserted it increases also the number of red corpuscles. Beta-naphthol has been suggested by Dr. Hunter, and this drug and the other disinfectants I have named perhaps deserve a trial, but I have no personal experience of their employment in anæmia. Too often in pernicious and other forms of hæmolytic anæmia, all treatment is incapable of preventing the final issue in death. Arsenic may arrest the disease for a time, and in a few cases effect a cure, but more often, as we have seen, its effects are more transitory than is generally believed. Indeed, the position to-day is but little altered since Addison said of it, "The disease presented in every instance the same general character, pursued a similar course, and, with scarcely a single exception, was followed after a variable period by the same fatal result." (From Dr. Mackenzie's Lettsomian Lectures.)—*British Medical Journal, Feb.* 7, 1891, *p.* 273.

24.—ON ARTERIO-VENOUS ANEURISM OF THE AORTA AND SUPERIOR VENA CAVA.

By William Pepper, M.D., Prof. of Medicine in the University of Pennsylvania, and J. P. Crozer Griffith, M.D., Assistant Physician to the Hospital of the University.

[The very valuable paper from which the following abstract is taken contains the narrative of a Case observed by the authors, also Reports of Twenty-eight other Cases, all that could be found on an extended search through medical literature, including one in which the symptoms were quite typical, but recovery took place.]

Recognition of the presence of varicose aneurism of the aorta and superior vena cava may be based upon the following principal symptoms, deduced from a study of the different reported cases:

1. *Cyanosis, œdema, coldness, and distension of the veins of the upper part of the body, with other evidences of obstruction to the circulation of blood in the tributaries of the superior cava.*—These symptoms have been present to a greater or less degree in all the reported cases of which clinical histories are given, and their diagnostic indications are evident. No lesion could produce such a condition, with its peculiar localization, except some great obstruction to the course of the blood in the superior cava. The thorax, however, does not always share the lividity and œdema of the head and arms; this variation depending solely on the position of the perforation or of the compression. If, namely, the obstruction in the cava is situated below the point of entrance of the azygos vein, the chest will share in the venous congestion; if, on the other hand, the obstruction is above the azygos vein, the removal of blood from the chest-wall is not interfered with, and no œdema develops. In certain cases the reason for the absence of thoracic œdema is not entirely clear, and often depends on the lack in the published report of a sufficiently detailed statement regarding the exact position of the obstruction in the cava. When the thorax is involved, there is sometimes a sharp line of demarcation between the upper affected and the lower unaffected portion of the body, marked by the numerous small varicose veins around the lower part of the thorax. It has happened more than once that a patient has shown a greater degree of œdema on one side than on the other.

The cyanosis is probably not due to the admixture of arterial and venous blood; otherwise we should see it well marked in cases of rupture of an aneurism into the pulmonary artery. It depends simply on obstruction from compression by the aneurism, and from the backward pressure of the arterial blood into the vein.

Slight œdema has in some instances been witnessed in parts of the lower portion of the body, though always secondary to that above. Œdema of the lower portion of the body in these cases is due, according to Halla, to the overfilling of the inferior cava

through the necessity which it is under of receiving a large part of the blood belonging to the superior cava. This same passive congestion explains the scanty secretion of urine which has been noted in a number of instances. In a considerable number of cases large amounts of fluid have been found in both pleural cavities, while in other instances there was none. The difference undoubtedly depends largely on whether or not the circulation in the azygos vein is interfered with.

Besides the cyanosis and œdema, dyspnœa may be present, either from the outset or later in the disease. It is not at all essential that dyspnœa be present, as it is in the event of rupture of an aneurism into the pulmonary artery. Its development depends on various factors, such as double hydrothorax with consequent compression of the lungs; œdematous swelling of the mucous membrane of the nose, pharynx, trachea, larynx, and bronchi; œdema of the lungs; pressure by the tumour on the respiratory tube; over-filling of and consequent irritation of the nerve-centres with venous blood.

Still other symptoms indicating venous obstruction may be seen. Cough is a frequent and natural attendant on the dyspnœa, and râles of various sorts are often heard. There was sometimes expectoration, and not infrequently it was tinged with blood. In some cases there has been difficulty in swallowing, probably due either to pressure of the aneurism on the œsophagus, or, in other instances, no doubt, to the excessive distension of the tissues of the neck with serum. Bloody tears were seen in Shannon's patient, and blood oozed from the conjunctivæ in our own case, and in that of Christianu's. A not infrequent symptom as the end approaches is a marked tendency to sleepiness, and, finally, coma. In some cases delirium was present before the coma developed. Attacks of faintness have also been reported, as in the case of Goupil's. Headache, too, is naturally present at times. Giddiness was observed in a number of other cases. Convulsions were uncommon, though they occurred shortly before death in Mayne's patient. Pain in the chest was sometimes observed, and in some instances was among the first symptoms appearing. Coldness of the upper portion of the body is a very common symptom. The temperature-chart of our own patient is an illustration of this fact.

2. *The suddenness of onset of the symptoms.*—With the recognition of impeded return of blood through the superior cava the diagnosis is by no means made. Obstruction to the flow of blood in the cava from various other causes may, as already stated, produce the same symptoms. Still, the comparative suddenness of their development in cases of varicose aneurism constitutes a most valuable diagnostic sign. This rapid development was seen in all the cases in which the mode of onset is reported. Sometimes it was exceedingly abrupt.

There is no instance reported in which there is an account of simply a very gradual increase in the gravity of a previously existing condition. Only a few days at the most were necessary for the characteristic symptoms to appear.

The rapid development of symptoms is not, however, absolutely pathognomic of rupture of an aneurism into the vena cava, although it renders the fact of its occurrence extremely probable; for, although simple compression of the cava is usually slow in its onset, the symptoms may exceptionally make themselves known with comparative rapidity.

In many cases symptoms indicating a degree of obstruction had existed for months or years before the rupture took place. Dyspnœa, cough, and palpitation, and sometimes pain, had been noticed in a large number of cases. The existence of such symptoms, followed by a rapid and great increase in their severity, or by the accession of new symptoms, would indicate that some great and sudden change had taken place in the condition of the thoracic viscera—the most probable being, of course, the rupture of an aneurism. Many cases begin without previous symptoms. These would equally point to some great change in the thoracic contents.

3. *Evidence from physical examination of the presence of a tumour in the thorax, and the probability that this is aneurismal.*—No reference is had here to the murmurs found, as these will be discussed separately. If the presence of an aneurism is confirmed in this way, in addition to the indications already described, the diagnosis of rupture into the superior cava becomes greatly strengthened. The existence in any case of such well-recognised symptoms of aneurism as dulness on percussion, thrill, and pulsation, together with the symptoms previously described, render the diagnosis very probable.

There remains to consider the last of the evidences of varicose aneurism:

4. *The existence of a murmur characteristic of a communication between an artery and a vein.*—When this murmur is present the existence of a varicose aneurism becomes practically a certainty. Thurman first explained the nature of this murmur as occurring in spontaneous varicose aneurisms of the aorta, and dwelt upon its diagnostic importance, though it was not present in the case of aneurism of the aorta and superior vena cava reported by him. Its extremely loud and distinct character is due to the small size of the opening. The chief feature of the murmur is that it is *continuous*, this being due to the fact that the passage of blood from the aorta into the cava is a continuous one. During the systole the pressure is at its height, and the sound is consequently loudest and highest pitched. During the diastole the current from the artery to the vein depends on the elasticity of the arterial

system acting upon the contained blood. The murmur is, therefore, still audible, though continually growing fainter and lower pitched, until the next systolic intensification.

A continuous murmur would seem almost necessarily to owe its existence to a varicose aneurism. Neither a simple aneurism nor any form of valvular disease could produce the continuous sound, since there would need be a short interval between the systolic and diastolic portion. That the peculiar continuous murmur is pathognomonic of a varicose aneurism was recognised and maintained by Thurman. Mayne and Cossy equally urge its diagnostic value, though showing by their own cases that the symptom is not an essential one.

There is no condition with which the disease could be confounded except that of remarkably sudden obstruction of some other nature to the passage of blood in the vena cava, and such cases are almost hypothetical. From other varicose aneurisms of the aorta the diagnosis is easy. Rupture of an aneurism into the right ventricle or right auricle would produce general cyanosis and œdema. Rupture into the pulmonary artery could not produce the characteristic localization of œdema and cyanosis. The murmur would be heard at the left edge of the sternum instead of at the right edge. The dyspnœa would probably be intense, and symptoms of engorgement of the lungs would eventually be followed by general anasarca, as in mitral disease. Treatment has proved useless.—*American Journal of the Medical Sciences, Oct.* 1890, *p.* 349.

25.—ON SYPHILITIC ARTERITIS.

By George W. Jacoby, M.D., New York.

While the action which syphilis exerts upon the large arteries has been known for years, our knowledge of its action upon the smaller vessels is due entirely to modern research.

As a result of these investigations, it has become evident that we are dealing with a subject of the greatest import; and the more we analyse the cases the more do we, on account of the complexity of the symptoms, realise the difficulty of the subject. One thing, however, is clearly shown by the results already obtained, and that is the necessity of carefully examining the small arteries of peripheral parts. What we know about the symptomatology of syphilitic affections of the superficial arteries, as revealed by a study of the few published cases, is as follows: From the clinical symptoms we are obliged to differentiate two phases of pathological change—a stage of induration with preservation of the lumen of the artery, and one of obliteration of the artery with all its consequences. In the obliterative stage we have symptoms of ischæmia, progressing in extent according to the seat of the affected arteries and according to the difficulty encountered in the

establishment of the collateral circulation: if the terminal arteries of the extremities are affected, the disorder will be marked, and consist in œdema, slight cyanosis, reduction of temperature, and finally, also gangrene of the parts; if, however, small arteries are affected whose collateral ramifications can be replaced, then the symptoms will be transient or entirely wanting. Finally, as syphilitic arteritis is frequently symmetrical (Baroux), we find that these symptoms are also often symmetrical.

The rarity of cases of syphilitic arteritis of the superficial vessels is, in my opinion, more apparent than real. Such cases have been described by Duplay (autopsy, generalised syphilitic endoperi-arteritis of all the arteries of the body), Cabot and Warren (case of gangrene of the right lower extremity, preceded by severe pains; autopsy revealed a syphilitic arteritis), Leudet (case of a male, aged fifty-three, syphilitic since six years, presenting an arterio-syphilis of the anterior branches of both superficial temporal arteries; one artery after the other became affected, the course being spread over an entire year; the development of the arterial affection was preceded by great pain at the seat of inflammation). Baroux, Brault, and Wilks have described cases in which the arteries affected were the internal carotid, both carotids, the vertebral, and left carotid. Despres's case of amputation of the foot on account of an eschar was probably an arterial syphilis, and in Barker's case of spontaneous gangrene of the fingers due to arteritis this was also in all probability of syphilitic origin.

Cases of syphilitic arteritis which closely resemble cases of Raynaud's disease, but in which the correct diagnosis was made *intra vitam* on account of loss of pulsation in the arteries and evidence of induration in their course, have been published by Ornellas and Schuster.

Of his case Ornellas says that, never having heard of this kind of inflammation localised in the extremities, he had some hesitation in diagnosticating spontaneous gangrene through syphilitic arteritis, but the rapid amelioration which ensued under anti-syphilitic treatment soon dispelled his doubts. The diagnosis was subsequently corroborated by Verneuil, Fournier, and Duplay. The case is of great importance, inasmuch as it furnishes practical support of Hutchinson's idea that an arteritis may begin in the small arteries of the fingers and ascend, for only after the second attack was radial pulsation lost.

Schuster's case is also important, because it clearly proves the possibility of symmetrical distribution of an arteriosyphilis of the peripheral vessels; here also was the differential diagnosis from Raynaud's disease difficult, and it was so particularly on account of the condition of the left foot, in which no gangrene was produced, the process being limited to Raynaud's prodromal stage.

Cases of Raynaud's disease occurring in syphilitic individuals have been described by Abercrombie, Morgan, Weaver, and others. Abercrombie's case is of particular interest in so far as it occurred in a child three years of age, who a year previously had had syphilitic manifestations and whose father was syphilitic. There is still another class of syphilitic cases, which is of the greatest importance from a differential diagnostic point of view. These are in all probability cases of syphilitic arteritis, but, no anatomical evidence of this arterial change being clinically discoverable, they would, from the clinical picture alone, have to be classed as cases of Raynaud's disease.

The following case is one of this class. The case was observed by me in private practice, and was also seen repeatedly by Dr. H. G. Klotz, to whom I am indebted for the use of his notes:

C. D., male, aged thirty-seven, called on me on January 7, 1890. Patient was infected with syphilis seventeen years ago; he gives a clear subsequent syphilitic history, having been afflicted with various syphilitic manifestations during the three years following the exposure. Since that time, with the exception of an attack of diphtheria two years ago, he has been fairly well. On November 28, 1889, he was exposed to a draught, which was followed by an attack of bronchitis from which he recovered in a couple of weeks. About ten days prior to his first visit to me, upon rising in the morning he noticed that his right hand was cold and swollen, the tips of the fingers having a bluish colour and a mottled appearance. At the same time or a few days later the left hand became similarly affected, but to a slighter degree. Severe pains in the fingers of both hands then set in; in addition to the pains, he also had a feeling of burning and of painful tingling in both hands. The pains during the day were quite bearable, but at night they were so severe that he was unable to sleep.

Examination shows both hands to be affected, the right one being so much more than the left. The fingers most involved are the third, fourth, and fifth; they are swollen and reddened, with their ends cold and livid. This coldness and discolouration extends upward to the metacarpo-phalangeal articulations, but is most marked at the distal ends of the fingers. The difference in the temperature between the ends of the fingers and that of the rest of the hand is exceedingly pronounced; the temperature of the cold parts was not measured, as no surface thermometer was available, but I think that when I say that the difference was at least 10° F., I am rather underestimating than overestimating the condition.

There is no pain to pressure over any nerve trunk; a small spot over the fourth metacarpal bone of the right hand is quite sensitive to pressure. Superficial anæsthesia is present; pain is experienced when a needle is introduced more deeply. The swelling of the

fingers is tense and unyielding. Pulsation is well marked in the radial and ulnar arteries of both hands. The heart and kidneys are normal. The patient, after having been seen by Dr. Klotz, was placed upon a mixed antisyphilitic treatment.

January 14th. Condition slightly improved; swelling not so great. Patient complains now of continuous severe pains in the ends of the fingers. The nails just below their free border show a circle of hemorrhagic spots. The pulps of certain fingers also show spots of hemorrhages shining through the epidermis. The swelling and the bluish colour are less prominent; the feeling of cold to touch is now hardly perceptible; the fingers are very sensitive. On the tips some portions are of a white colour, suggestive of a flat bulla or blister, covered by a thick layer of epidermis; besides the white spots, other portions attract attention, which are of a dark-red colour, and the tips of the fingers have precisely the appearance as though they had been exposed to severe cold. The general appearance of the patient has considerably improved.

29th. Decided progress in improvement, particularly as regards the swelling and motility of the fingers; so also are the tips of the fingers much less sensitive; on some portions the epidermis is becoming detached in the shape of hard, thick scales, while on other portions the skin is dry and divided by cracks; some of the tips are hard and calloused. The left hand has undergone the same changes as noted of the right.

February 2nd. The callosities have gradually concentrated themselves upon the extreme tip of the fingers; then necrosis with formation of new skin underneath has taken place. The fingers to-day are neither swollen nor painful, but the ends are still hard, with necrosed places on each; they look as though they would soon be entirely well.

May 1st. Patient has been in Hot Springs, Ark. There he had twenty-four inunctions, thirty-one baths, and two mineral vapour baths. He says that his right hand is an inch and a quarter larger than formerly, which he knows from the fact of being obliged to wear a size and a quarter larger glove now than before he was taken sick. The fingers still feel worse when exposed to cold. To-day it seems to me as though the right radial pulsation were not as strong as that upon the left side.

June 9th. The iodide which has been taken right along is discontinued; fingers somewhat stiff, but are improved by massage.

August 5th. Hands in good condition, although the subjective feeling in them is not entirely natural.

December 4th. Hands have normal appearance, but patient still complains of their getting cold very easily. Otherwise they are normal.

Cases very similar to this one have also been described by Hutchinson and Klotz.—*New York Med. Journal, Feb.* 7, 1891, *p.* 146.

26.—CASE IN WHICH AN ENLARGED SPLEEN, ASSOCIATED WITH A LARGE INCREASE OF THE WHITE CORPUSCLES, DISAPPEARED UNDER TREATMENT.

By Alfred G. Barrs, M.D., M.R.C.P., Senior Assistant Physician to the General Infirmary at Leeds.

Mr. ——, aged twenty-three years, came to me on Sept. 23rd, 1889. He said at once that he was suffering from albuminuria, which had been discovered by a medical man whom he had seen in Paris in the June previous. From Mr. ——'s age and appearance I at once suspected that he was suffering from a functional form of albuminuria. He gave the following history of his case:—In September, 1888, two teeth were extracted by his dentist and there was bleeding from the gum for seven days after each separate extraction. (Previous tooth extraction had not been followed by bleeding.) He was in good health up to the date of the extraction. The bleeding pulled him down a good deal, and he has felt more or less feeble ever since. In Jan. 1889, eight months before I saw him, he had been in Spain on business, and had had there diarrhœa and a very bad cold. (No malarial cause for this was known.) On his return home he looked ill, and had lost some weight. In June, 1889, still feeling ill but able to travel in connection with his business, he was seen by a medical man in Paris, who found albumen in the urine. On one occasion the albumen was found to be absent after exercise at 1 P.M. At this time (in Paris) there was a copious sediment of urates. There was no known increase in urine, no nocturnal micturition. His general condition had improved since the beginning of 1889. He had never passed any black urine, but he had been subject to chilblains when a boy. I made a rapid examination of the chest, and found no sign of cardiac or pulmonary change, so that the case seemed only to require the evidence to be found in the urine to confirm my suspicion of functional albuminuria. Accordingly I asked Mr. —— to send me specimens of his urine, taken at different times, for the following four days, which he did. I need not detail the results of these examinations. All the specimens examined were loaded with urates, a fact, I need scarcely say, practically negativing organic renal disease. All were highly albuminous, and—a point particularly worthy of note—the morning urine (that is, the urine passed on rising) was always more albuminous than the urines passed before and after dinner. In all forms of functional albuminuria the morning urines are generally free from albumen, or at any rate are always markedly less albuminous than those passed after exercise and after food. In this case we had a urine loaded with lithates, and containing more albumen in the morning than at any other time in the day. This at once made me suspect that I had overlooked some important

point in the case through accepting too readily the statement of Mr. ——'s medical attendant in Paris. At the end of four days I saw Mr. —— again. On examining the abdomen I was surprised to find an enormous enlargement of the spleen, of which I took the following two measurements:—The lowest point of the free edge was $6\frac{1}{4}$ in. below the costal margin in the nipple line, and its extreme right limit was easily defined at $3\frac{1}{4}$ in. to the right of the middle line. The liver could also be felt about $1\frac{1}{2}$ in. below the right costal margin. There was no lymphatic enlargement. On examination of the blood, the white corpuscles constituted at least 25 per cent. of the former elements seen in a field of the microscope. On being questioned, Mr. —— said that he had known that his abdomen had been increasing in girth for perhaps twelve months, but he had thought it was nothing more than an ordinary stoutness, though he also knew that he had not increased in weight. After a careful consideration of the facts so far as I could ascertain then, I came to the conclusion that, in spite of the almost absolute certainty that the patient had at some time been exposed to malarial influences, for he travelled during the greater part of the year, and mostly in Southern Europe, the case was a well-marked example of simple splenic leucocythæmia. This opinion I expressed to his friends, and told them that the average duration of life in such cases was about two years for persons of Mr. ——'s age. A report of the facts of the case, drawn up by myself, was submitted to Professor Virchow, who confirmed my opinion as to the nature of the disease, but gave the patient longer to live than I had done, and suggested some unimportant details of treatment. The urine continued albuminous until Jan. 6th, 1890, when all the specimens examined were found to be normal. Through December, January, and February, the spleen gradually retired towards the left hypochondrium, and in March it could no longer be felt. At the same time the increase in the white corpuscles became less and less marked until March 21st, 1890, when examination showed them to be not more numerous than normal. From the time I first saw him till April, 1890, Mr. —— had systematically taken arsenic and iron, the former in increasing doses, until he was able to take nine drops of the liquor arsenici hydrochloricus three times daily without inconvenience.

I think anyone who had seen the case would have concurred in my diagnosis of splenic leucocythæmia. Certainly, all the cardinal signs of that disorder were abundantly manifest. A malarial influence has been always mentioned as one of the exciting causes of splenic leucocythæmia; but, so far as I know, whether of malarial taint or not, such cases as that I have narrated have always ended in death. There could be no doubt that Mr. —— had been in malarial districts over and over again, but he had never had any recognised malarial manifestations. The case, what-

ever its intimate nature, shows that a marked leucocytosis and an enormously enlarged spleen may disappear under treatment by arsenic and iron—the only method of treatment, so far as I know, which has ever achieved any reputation in the betterment of any of the members of the group of blood disorders to which splenic leucocythæmia belongs. The occurrence of albuminuria in leucocythæmia has been recorded, but this case is the first example of it that I have seen. At present, I cannot of course speak to the permanency of the recovery, for, as is well known, at least one member of the family of blood diseases—namely, idiopathic anæmia, has periods of improvement, if not of absolute recovery, followed at length by fatal relapse.—*Lancet, Feb.* 21, 1891, *p.* 422.

DISEASES OF THE ORGANS OF RESPIRATION.

27.—REMARKS ON THE BARKING COUGH OF PUBERTY (CYNOBEX HEBETIS), AND ITS TREATMENT.

By Sir Andrew Clark, Bart., M.D., F.R.S., Consulting Surgeon to the London Hospital.

Some thirty years ago Dr. Brown of Rochester sent me for examination a boy of fourteen years of age, the subject, for several months, of an incoercible convulsive cough. The patient belonged to a nervous family; he was himself nervous, and whilst under examination was odd in movements and restless in manner. Small, thin, pale, and fair, but quick in movement and in response, he exhibited all the characteristics of extreme "delicacy." Careful examination brought to light no sign of special structural disease, and at the end of the examination I found myself no further than at the beginning, and could say of the patient only that he was a very delicate and nervous boy. But when preparing to leave the room, the lad, startled by a sudden noise, began to cough, and had a paroxysm of coughing which lasted for over a minute. The paroxysm consisted of a close succession of loud, dry, clanging, convulsive coughs, varying in intensity and duration, broken into irregular bars and phrases, and resembling at one time the barking and at another the howling of a dog. During the continuance of the paroxysm the patient appeared to be much distressed; his face was swollen and faintly livid; the eyeballs became prominent and congested; the body, bent forwards, was shaken by the violence of the coughing, and the hands, crossed upon the chest, convulsively clutched his clothes. At the close of the paroxysm the patient appeared to be a little dazed and was somewhat giddy. Recovering himself in a few minutes, he passed a quantity of limpid urine, and the storm was at an end. The malady in this

patient lasted over thirteen months and then slowly subsided. No ill effects followed; but I some years afterwards learned that the patient was still nervous, and that a dry convulsive cough was readily provoked by trifling colds.

[Sir Andrew Clark after narrating other two examples of this disorder, which are not reproduced here, remarks:]

All the cases to which I have adverted are examples of the severest forms of the malady of which I am speaking, and they represent the chief varieties of it which have come before me in practice. But the attacks are slight as well as severe, and there are other varieties of it which I have thought unnecessary to notice. Except in degree, the cases so closely resemble each other that from the study of one we may learn the characteristic features of all. Of the four examples, which I have brought under notice, of this convulsive cough of puberty, three have occurred in boys, and it might excusably be inferred therefrom that this represented the numerical relation of occurrence between the sexes. But it is otherwise. The cases referred to were chosen in illustration of the varieties of the malady; and of the whole number which has come within range of my experience the greater part was found in girls.

In proceeding to consider the nature of the convulsive cough of puberty, one must keep in view the extent, variety, and character of the changes which occur in the organism during the final evolution of sex. When, furthermore, we remember that for the most part the family and the personal history of the patient is nervous, that no local changes adequate to the explanation of the malady are to be found in the pharynx, in the larynx, or in the lungs; that the cough and other disturbances of the respiratory movements are rhythmic and paroxysmal; that no structural degenerations follow in the wake of the affection; and that it disappears with, or shortly after, the complete evolution of sex, we cannot doubt—at least, we cannot, I think, justly doubt—that this convulsive or barking cough of puberty (cynobex hebetis pubertatis tussis canina) is a malady of nervous origin, character, course, and issues. But in how far the inborn changes which engender it are central or in how far peripheral; to what extent they are modified or controlled by extraneous influences; whether they are structural or dynamic; and what may be their exact seat or intimate nature, I refrain at this time from striving to determine.

Concerning the prognosis of this malady, it will be sufficient to say that in all the cases of which I have had any direct knowledge, and they number over twenty, the course, although usually tedious and sometimes prolonged, has ended eventually in complete recovery.

I proceed now to speak of the treatment of this malady. Unfortunately, I am compelled to confess my belief that I have not succeeded by any treatment which I have hitherto employed

in shortening, to any great extent, the duration of the disorder. Nevertheless, I am as sure as I can well be about anything of this kind, that by an appropriate regimen, by sedative applications to the interior of the throat, and by the administration of certain internal remedies, I have succeeded, without disturbance of the patient's health, in restraining the cough within harmless limits, in averting secondary evils, in improving the general health, and in guiding the course of the malady to a somewhat speedier issue than otherwise it would have reached. With respect to regimen, I have to observe that in all the cases brought before me the patients were plainly overfed; that in addition to ordinary meals there were frequent "interludes" of different kinds of food, mostly preserved; and that alcoholic beverages of some sort or another were freely administered. For my own part, I am unable to believe that the laws of digestion are suspended because an organism is troubled with a malady of this kind, that there is no physiological limit to the administration of food in disease, and that one is not certain to make a bad fire when one keeps putting too many coals upon it. Improvement has almost invariably followed the enforcement of a simple but liberal dietary, arranged into three, or at most four, meals a day, abstinence from alcohol, cold or tepid sponging, warm but not too warm clothing, active out-door exercise, early hours, and general discipline. Poor platitudes these, it may be said. Yes. Plainly so on paper, but not so in practice, where they can effect so much, and are yet overlooked so often. Of local applications to the interior of the throat only two have done good service. The first is glycerine of borax with oxychlorate of bismuth and morphia, and the second is the same combination with the substitution of cocaine (10 per cent.) for morphia. These applications should be brushed over the whole interior of the throat after each meal and also at bed-time. In using cocaine, care must be taken in its application to the larynx, which is sometimes provoked by it into dangerous spasm.

Among the internal remedies which I believe to be of use in this malady, there are also two. The one is a syrup of the bromide of quinine and iron, with small doses of arsenic; and the other is a pill of reduced iron, valerianate of zinc, belladonna, and nux. This latter combination, often successful in controlling the cough, must be given in doses slowly increased until the physiological effects of the belladonna become apparent; then, slightly diminished, the amount administered should be maintained at that level.

There is still another remedy to which, in laryngeal nervous affections, specialists in throat disease attach great importance; and that is a long sea voyage. Undoubtedly it is sometimes successful; but undoubtedly also, in my experience, it oftener fails. Furthermore it is costly, it is difficult to carry out, it interrupts the work of education, and occasionally, in the case of

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boys, it begets habits of a kind which permanently interfere with a right conduct of the business of life. For my own part, when I now review my experience of the effects of sea voyages upon young invalids, I am more strongly impressed than ever I was before with the necessity of extreme caution in prosecuting them. *Lancet, Dec.* 20, 1890, *p.* 1319.

28.—REMARKS ON THE EFFECT OF KOCH'S REMEDY ON THE INTERNAL ORGANS OF TUBERCULOUS PATIENTS.

By Professor Rudolf Virchow, Berlin.

With reference to a rather large number of preparations which I have brought here, I beg to be allowed to make a few introductory remarks. In the first place, I wish to say that I do not, as will readily be understood, propose to speak here of my own casual observations on patients, but only of what we have been able to establish by way of anatomo-pathological research. From the beginning of the injection period up to the end of the year that has just passed away the total number of deaths of patients treated by injections of Koch's fluid that have come before us has been 21. Besides these we have already had in the course of the present year, I believe, 6 or 7 other cases; even this very day we have had an opportunity of submitting some new specimens to examination. (In addition to this, my assistants have made necropsies in a large number of similar cases in other hospitals and in private, and I have seen the most important results of these examinations.)

It is obvious that this anatomo-pathological material must differ considerably from the clinical, in which processes visible to the eye stand in the foreground of observation and of interest, while we are, of course, much more concerned with the internal parts, most of which are inaccessible from the outside, and the diseases of which can in many cases be only very superficially discovered, even by the most accurate examination. Perhaps, however, you will be interested in having the opportunity, even once, of seeing such results, and comparing them with those obtained by the direct examination of parts within reach.

Of the 21 cases which we had up to the end of December, 16 were phthisical in the narrow sense in which the word is usually employed as denoting disease in which the essential element is that the lungs are affected. As regards the other 5 cases, there were among them an exquisite case of severe bone and joint tuberculosis; a case presenting the peculiar complication of carcinoma of the pancreas, with some small smooth-walled cavities with surrounding induration in the apices; a case of empyema in a lying-in woman, who would probably have died even without the injection; a case of pernicious anæmia with very slight old-standing changes in the lungs and tuberculous pleurisy; lastly, a case of

tuberculous arachnitis. The other 16 cases were, as I have already said, cases of pulmonary phthisis, in all of which ulcerative processes of greater or less extent were present; most of them were examples of true consumption.

I cannot now enter into the details of these cases; perhaps I may have an opportunity of doing so at some future time. I may, however, be allowed to make some general remarks on them to the following effect: Just as the activity of Koch's remedy, as seen externally, manifests itself principally in the setting up of very acute irritation in the affected parts, with intense redness and great swelling, so does it also in the internal organs. We have seen very marked instances of this. I have here a preparation which may well be taken as a typical specimen. It comes from the clinic of my colleague, Professor Henoch, and belongs to the case of tuberculous arachnitis already referred to. I may observe that there were also changes in the lungs, consisting in some rather old-standing patches of caseous pneumonia, which might be looked upon as the source of metastatic arachnitis, and a number of recent inflammatory changes. After four injections, in all amounting to 2 milligrammes, the last of which was given sixteen hours before death, the patient (a boy, aged $2\frac{3}{4}$ years) died, and colossal hyperæmia of the pia mater as well as of the brain substance, the like of which I never remember to have seen before, was found. The preparation before you was at first preserved simply in glycerine; it has kept fairly well also in the dry state. It shows on the surface extreme engorgement of the vessels of the pia mater, whilst internally the brain substance is dusky red in appearance. I take this opportunity of mentioning that in this case—the only one, it may be added, of tuberculous arachnitis which has yet come before us for examination—I personally examined the tubercles; I cannot, however, say that I saw any evidence in them of retrogressive changes. The tubercles were very well formed, and presented the usual appearances of meningeal tubercles.

Similar acute hyperæmias and swellings are also seen in other internal parts. In particular it was repeatedly noted by us that even the surface of old pulmonary cavities showed unusually intense redness of the granulation layers; moreover, hemorrhagic infiltrations of the walls were not seldom present, and even recent hemorrhages were observed in the cavities. Thus in a man, aged 30, with an old rectal fistula and numerous tuberculous ulcers of the colon, death was the result of hæmoptysis from an old ulcerated cavity; he had received seven injections, the last thirteen days before his death, on which occasion the first bleeding occurred.

The processes observed, however, are not merely transient congestive swellings as to which it may be assumed that they will, perhaps, disappear in a very short time, but there can be no doubt

that in the internal parts actual inflammatory processes, and especially active proliferations, occur to an intense degree. This holds good chiefly with regard to two places in which such appearances are very conspicuous; these are, first, the edges of existing ulcers; and next, the neighbouring lymphatic glands, especially the bronchial and mesenteric. The lymphatic glands present a quite unusual degree of enlargement, and notably that form of medullary swelling characteristic of acute irritations, which is caused by rapid proliferation of the cells in the interior of the glands. It is in harmony with these large acute swellings that frequently also an increase in the colourless elements of the blood can be detected—a condition of leucocytosis to which may, perhaps, be attributable the relative frequency with which various infiltrations of white blood corpuscles in the neighbourhood of the affected parts, especially around the tubercles themselves, can be observed.

These swellings occasionally assume a very dangerous character. I will only refer to the phenomena which are seen in the larynx, where, even in cases in which the ulcerated surfaces themselves become clean, the adjoining parts swell to an enormous extent, and cause constrictions of a very critical nature. Together with these changes, there occasionally occur other more violent forms, which take on a phlegmonous character, and remind one of œdema glottidis erysipelatodes and retropharyngeal abscess.

As regards these inflammations, you will understand that it would be difficult to say of every inflammation occurring in such a patient whether or not it had been caused by the injection. We have at present no criterion of an objective kind which could enable us to make such a distinction. I am not in a position, although I have seen rather a large number of such cases, to say precisely how such a kind of inflammation is to be recognised and distinguished from other inflammations which occur in the course of phthisis independently of these injections. Yet there is one thing which is somewhat remarkable; and I will for the present confine myself to an accurate statement of what we found in the lungs.

It was noticed that among the fatal cases of ulcerative phthisis the large majority exhibited recent changes of great extent, more particularly in the lungs, but also pleurisy—and for the most part very severe pleurisy—simple and tuberculous, frequently hemorrhagic and not infrequently bilateral.

The changes in the lungs themselves may be divided into two fairly distinct categories. One of these corresponds approximately to that condition which we are accustomed to call caseous pneumonia, or, anatomically, by the name of caseous hepatisation. With respect to this, it should be understood that it is very doubtful whether caseous hepatisation stands in any direct relation to the injection. I should, perhaps, for my own part, be inclined to

deny any such connection were it not that some of these cases are of quite special significance. From the most characteristic one of these comes this piece of lung, which shows such extensive caseous hepatisation that I do not remember to have seen anything like it for years. The lower lobes of both lungs, especially the right, were as large as in ordinary hepatisation, but the individual foci were packed so close together that there was hardly any normal lung tissue between them. The lung, when fresh, looked like a piece of blood pudding thickly studded with pieces of lard. The parts not occupied by caseous hepatisation had a blackish-red appearance, and contrasted sharply with the caseous portions. This patient (an architect, aged 33) had received six injections, the last one four weeks before his death; the treatment was then discontinued, according to the statement of the doctor, because there was persistent fever, and infiltration of the lower lobe came on. In this case, therefore, the infiltration first began after the injections, whereas previously there had only been induration at one apex; and, as to this, it was afterwards proved that for the most part it presented an older and more indurative character.

Here the acute occurrence of the change after the injections is established beyond doubt. But in other cases also the whole condition of the lungs was in no slight degree different from what we are accustomed to see in cases of consumption. I may also point out that among the 16 cases of phthisis which we had in December there were 5 which showed recent caseous hepatisation in greater or less degree, but none approaching in extent the one just mentioned.

A second change is likewise found in the lungs, which must also be described as inflammatory. It is, in my opinion at least, even more different from what we usually find, although I must here also say that I cannot lay down any universally valid pathognomonic criterion. The pneumonias which develop in the course of phthisis can, as is known, be divided into three different classes. They are either caseous or of the ordinary fibrinous type—these also occur—or catarrhal, the so-called smooth pneumonias in which the essential feature is that accumulations of cells are present in the alveoli. All this is occasionally seen in phthisical patients. I may also remark that pure fibrinous pneumonia, in the ordinary sense of the word, has been present in none of the injected cases. The caseous form I have already mentioned. Any other variety will approximate in type to one of the forms which, according to the ordinary ritual, are classified under the head of catarrhal pneumonia. Injection pneumonia has, in fact, points of similarity to the catarrhal variety, but I must say it has also certain differences. The ordinary catarrhal pneumonia, as we find it in phthisical patients, shows accumulations in the alveoli, which can easily be squeezed out, and are relatively fluid in character. Sometimes

they are so thin as to resemble jelly, and it was on the observation of this fact that Laennec based his old doctrine that tuberculous infiltration, as he expressed it, begins with a gelatinous infiltration. Here, however, the product is not gelatinous; on the contrary, it is very watery and turbid, and it might be called a turbid infiltration. It reminds one of a phlegmonous condition. In some places it is somewhat thicker; occasionally it has, to a certain extent, the external aspect of caseous infiltration, without, however, attaining the decidedly dry character of the latter, so that if the two are situated side by side there is no difficulty in distinguishing the one from the other. The catarrhal-phlegmonous product is softer, moister, and looser than the other. Among the specimens here exhibited there is a perfectly fresh one, which, besides a colossal ulcerated cavity at the apex, shows caseous, and—if I may use the expression—catarrhal infiltration side by side in the lower lobe. In two other specimens also caseous and catarrhal hepatisation may be seen side by side. Among the 16 cases of last year, there are 7 which show this more diffuse soft hepatisation.

This form has also something whereby it is clearly distinguished from the ordinary catarrhal hepatisation. It happens that in the midst of these patches foci of softening become developed, which quickly lead to breaking down of the parenchyma and to a kind of excavation—for instance, in the lower lobe—such as hardly occur except in gangrenous broncho-pneumonia. This, indeed, was not very frequent. Such a result appears to me to indicate that in these cases a more potent injurious influence has been at work than that which we in other cases recognise as the cause of catarrhal pneumonia. In fact, I am under the impression that—I will not say all these cases—but a certain number of them, exhibit inflammatory processes analogous to those which we see develop on the external parts after injection, and which present a higher or lower degree of intensity, according to the nature of the individual and the special features of the case.

As regards the other results of our examinations, one thing was noted, the significance of which will have to be tested by careful clinical observations on the course of a number of cases; that is the development of fresh tubercles in these patients. It must be understood that I speak on this point with great reserve, as we possess no certain basis of fact which would enable us to pronounce with any certainty as to the duration of small tubercles—I speak here of the submiliary forms—and the age of the submiliary tubercles. On the whole, however, we are disposed to look upon such tubercles as fresh formations. A few observations on the eruption of such tubercles subsequent to injection have already been made clinically in the case of the laryngeal mucous membrane. With reference to this, I may point out that under the eyes of the observer small tubercles, speedily

giving rise to new ulcers, have suddenly appeared in places which till then seemed perfectly free. People have comforted themselves with the assumption—at least, so I gather from published records—that these tubercles were present before the injection, but had escaped detection; and it is taken for granted that they will be attacked and destroyed by the remedy and transformed into ulcers. As to the correctness of this opinion in the cases cited I can, of course, say nothing; but I can say that we, examining the internal organs after injection—and especially those which I have always considered the most reliable for the observation of these fresh forms, namely, the serous membranes—have seen the eruption of entirely new submiliary tubercles under circumstances which made it scarcely probable that the tubercles were of older date. This holds good particularly of the pleura, the pericardium, and the peritoneum. The supposition that the tubercles would be powerfully influenced by the action of the remedy, and that their substance would thereby become necrosed, was never realised. All the submiliary tubercles, of which I am here speaking, were perfectly intact, even when the injections had been made weeks before. All the more am I convinced that the eruption first appeared *ex post.*

As to the lungs themselves, you know well how difficult it is to recognise these very fine tubercles in their interior with certainty. I will therefore not speak of that, and will confine my remarks to parts in which either (as in the mucous membrane of the larynx) miliary tubercles first appeared after the injection, or after a long course of injection entirely fresh and uninjured tubercles have been found on the serous membranes. Here is an intestine from one of the January cases, in which entirely fresh submiliary eruptions are seen in the vicinity of old intestinal ulcers; the same man (aged 41) had also fresh tubercules in his pericardium.

How these new eruptions are to be explained must be left for further consideration. Nevertheless, I venture to point out that if we assume that all tubercles are produced by bacilli, such out of the way parts as the pericardium deserve special attention. In one other case the so-called epicardium presented in one place not in contact with an affected part of the lung, a small focus where four submiliary tubercles were situated close to each other in the middle of an area of intense hyperæmia. Here there was no alternative but to suppose that the germs had reached that place by way of metastasis. How could we help thinking of metastatic processes here, and conjecturing whether, in fact, the bacilli had not been mobilised, and whether they had not been diffused through the body by a process of infection? Since, as you know, Dr. Koch himself considers the bacilli to be sufficiently refractory to the action of his remedy—and we have not found that they are

destroyed—the possibility must not be overlooked that if in any one place a process of softening whereby the products of disintegration are rendered more fluid, or at least more mobile, is set up by the action of the remedy, these products will also be displaced, and may give rise to new foci in other places. Such a consideration is not far-fetched; and with it is connected another. If we see that during the treatment a whole lower lobe becomes filled with foci of caseous hepatisation, it is an easy step to the conclusion that material which is set free in the upper lobe by breaking up, and which is not coughed up, will perhaps be drawn in by inspiration, with the result that pneumonia such as is caused by foreign bodies—and in this case of caseous character—is set up.

I consider myself bound at least to give expression to this view, and to add a warning to practitioners to operate with greater caution in cases where it is not certain that patients have the strength completely to expectorate the broken down tissue, and the habit of doing so, and where there is, therefore, a possibility that transference of material to other parts of the lung may take place with the result of creating new foci of disease.

Permit me now to mention a little point; that is, the breaking down itself, to which my colleague Dr. Koch attaches particular importance as being the principal result effected by his remedy. I admit that all which we have seen indicates that such an effect is produced in many places. It is not yet clear to me, however, how it is that this necrotic effect does not occur universally—that, for instance, as I have already said, the submiliary tubercles resist the remedy in many places. I acknowledge that, as has been stated by some earlier observers, for instance, in tuberculous pleurisy, individual tubercles, especially if they are at all of large size, assume an unusual turbid yellowish appearance, and, in fact, can be seen with the microscope to undergo a process of disintegration. But in other cases, even after injections continued up to the day of the patient's death, nothing of the kind occurred.

Even large tubercles show themselves very refractory. We have lately had a very remarkable case, in which tuberculosis of the vertebral column and long bones was present in a boy aged three years; large tubercles were also found in the brain. The injections in all amounted to 0·012 g. It was a case from the surgical department in which there was vertebral caries with gravitation abscesses, and many points of disease were present in the joints and long bones of the lower limb. At the necropsy it was found that the boy had an unusual abundance of the so-called solitary tubercles in his brain and cerebellum. As is well known, these tubercles owe their name to the fact that there is usually only one which may be of the size of a walnut; in this case, however, there was a whole heap, I think seven; they were therefore pro-

perly not solitary, but they belonged to that category. They were like large lumps of cheesy matter. Neither in them nor in their vicinity were any considerable changes to be seen. I noticed in their interior some soft places, but these occasionally occur in other cases without anything particular having taken place. At all events, the nodules showed no marked breaking down.

In conclusion, I wish to call attention to two points of prime importance which are rightly taken into account in every case of phthisis, namely, ulcers of the intestine, and ulcers in the respiratory organs, particularly the lungs.

As regards the intestine, there can be no doubt that necrotic processes similar to those observed on the external parts of the body in lupus, &c., take place in intestinal ulcers. In old-standing ulcers with extensive surface and thick edges, particularly in which new submiliary eruptions have occurred, we see such necrosis to an excessive degree. An example of this is afforded by the intestine here shown which comes from one of the January cases, namely, the man with the fresh pericardial tubercles. The necrotic process there reaches right through to the serous coat. If the man had lived a couple of days longer perforation would undoubtedly have taken place, as in another case recently mentioned, I believe, by Dr. B. Fraenkel, in which the patient died in consequence of such a perforation. Although perforation and necrosis occur also in other cases of tuberculous ulcer of the intestine, I feel myself obliged to point out that here we have two very severe cases, in which the necrotic process must have taken place very rapidly, occurring in the short space of two months.

The same holds good with regard to ulcers in the respiratory organs in which very rapid disintegration takes place, and the size of the loosened masses is sometimes altogether out of proportion to the ability of the individual to expel them from his body. In this way all kinds of complications from retention and aspiration will be caused.

Among the other specimens I may mention one case of tuberculosis of the larynx of altogether unusual severity, in which twenty injections were given, the last on the day before the patient's death. This was the same man who has already been mentioned as the subject of pericardial tubercles and gangrenous ulcers of the intestine. As regards the point under consideration, a fresh eruption of tubercles of extreme intensity can be seen extending over the whole of the larynx and trachea.

Another specimen shows fresh caseous hepatisation; it comes from a case in which six injections were made—the last four days before the patient's death. We have also one such case in which three injections were given, the last a week and a half before the patient's death, and in which caseous foci and diffuse inflammatory processes are found side by side. Lastly, I exhibit

a specimen which was obtained only this morning; it shows the formation of abscesses, starting from bronchiectases of the lower lobe, in progress in the lungs. (Translated from the *Berliner Klinische Wochenschrift*, Jan. 17).—*British Medical Journal, Jan.* 17, 1891, *p.* 127.

29.—A LECTURE ON KOCH'S METHOD OF TREATMENT.

By Dr. KOEHLER, Surgeon to the Charité Hospital, Berlin.

Dr. Koehler, who has had large experience in the employment of Koch's liquid for the treatment of surgical cases of tubercular disease, delivered an address at a meeting of the German Public Health Society. The meeting was held at the Hygienic Institute (where Koch's laboratory is) at 7.30 p.m. on the 24th ult., and the large hall was crowded to the fullest extent. Dr. Kaldischer presided over the meeting. Professor Spinole opened with a few congratulatory remarks on the good fortune of the Society in securing the services of so distinguished a surgeon as Dr. Koehler to lecture, and alluded to the glorious light reflected on the German nation by the many discoveries of Koch, especially his last. It was proposed and carried by acclamation that Koch should be elected an honorary member of the Society.

Dr. Koehler then commenced his lecture. Patients had been brought from the Charité, and were exhibited to the audience. They were suffering from various forms of external tubercular and joint affections; some were inoculated before the meeting, others had been done at various dates previously. He would as a surgeon limit his remarks to his surgical experiences, and perhaps allow himself to suggest a few deductions from them which seem justified by his experience. But they should remember these deductions were his, and Koch was not to be held responsible for them. His lecture would deal with tuberculosis of the skin and joints, but not with pulmonary tuberculosis. He had been engaged in treating cases by Koch's method for over six weeks. He would have preferred to wait for a very much longer time before publishing any of his experiences—results he could hardly call them, except as temporary results, which time might show not to be permanent. But *necessitas leges non habet*, and the circumstances of the time rendered it almost necessary to make the medical profession acquainted with the progress of the cases treated by Koch's method. He would bring before the meeting for inspection some ten cases treated according to that method. He thought it well to bring to their notice some points in the technique of the practice, points which he had been taught by practical experience to be important. First, he would strongly advise that Koch's liquid should not be injected near to the site of local tubercular mischief, but under the skin of the back, near the

margin of the scapula. By this procedure they would avoid a source of error, arising from modifications produced in the infected part by the injection itself. Further, he considered Koch's syringe by no means essential; indeed, it has the drawback of containing more fluid than was required for an injection. It was highly desirable that there should be some uniformity in the nomenclature employed in speaking of the method, &c., and of inoculation. They should adopt some dilute standard of normal solution of the liquid or "lymph," if it may be so called, for regular practice, with which all other dilutions could be compared. He suggested that a 1 per cent. should be taken as the normal solution; that is the mother liquid diluted to $\frac{1}{100}$. He thought, further, it would simplify matters greatly if they always spoke of such a volume of liquid injected, and did not, as was now common, sometimes speak of so many milligrammes, and sometimes of so many cubic centimetres. He himself would always speak of the quantity injected as so many cubic centimetres, and when he said, for example, he had injected 0·01, he would always mean 0·01 cubic centimetre of the dilute standard solution of $\frac{1}{100}$. The dilute normal solution was perfectly clear. It went without saying that the syringe, needle, &c., must be perfectly clean and aseptic. It should always be sterilised before use by washing in absolute alcohol. If a little of the alcohol remained in the syringe when the lymph was put in it, a slight opacity was produced in the lymph. After the injection there ensued (in tuberculous persons) a feeling of malaise, followed usually by rigors as the fever rose, and frequently accompanied by vomiting. At the point of inoculation there never was local reaction when there was tubercle there, but there was always general reaction, which had a marked character. But its duration was almost always such that at the end of twenty-four hours the reaction had mostly passed away. Among secondary phenomena arising from the inoculation he had seen cases of skin eruption of different kinds. One remarkable case he would show, that of a child covered all over with a cutaneous hyperæmia, very like scarlet fever. [The child was exhibited, the upper part of its body being uncovered. Its skin was uniformly of a bright red colour, not in patches, but when seen from a little distance was very like general scarlatinal eruption. In another case he had seen eruptions very like *Friesel.*] He had also seen yellow discolouration of the skin; he had seen icterus occur twice. He had also seen inflammation of the cornea and conjunctiva occur, and in one case the conjunctiva became red and inflamed after each injection. He had more experience in the treatment of lupus than of any other disease by Koch's method. It was of the utmost importance to distinguish cases in which the disease had only involved the most superficial tissues, and those in which deeper tissues were also attacked. The

former offered much less difficulty in treatment than the latter. When the disease is superficial the tissues which have become necrosed under the action of the injection of Koch's liquid were readily removed from the body. It was different when the tuberculosis had attacked deeper structures. In such cases it was necessary to assist the action of Koch's liquid by surgical operation, and thus to remove the necrotic tubercular tissue, and along with it the living bacilli from the body. For this purpose the familiar "sharp spoon" was the most convenient instrument. It must not for a moment be imagined that the surgical treatment of tuberculosis could be entirely supplanted by Koch's method. The surgeon would now, as before, be obliged to operate on certain cases of tuberculosis. Undoubtedly his procedure would often be rendered easier and more successful now that Koch had provided them with a means of readily recognising the existence of tubercle when it would without its assistance have remained unsuspected, and also with a means of more sure demarcation of the diseased tissue. Resection of the joints would be also called for in certain cases, just as before Koch's discovery. These opinions he founded partly on experience, partly on theoretical conclusions from Koch's own statements. According to Koch's expressed opinion his liquid acted only on the living tubercular tissue, but not on the bacilli themselves. The bacilli remain in a state of activity, and capable of continued mischief in the body. What become of these bacilli? Several theories may be advanced on this subject.

1. We know that such necrosed tissue may become absorbed. That was a matter of everyday experience. But, as to the bacilli, we were justified in assuming: (*a*) That the bacilli might be absorbed along with the necrosed tissue. This could only be disastrous and lead to further localised or general tuberculosis. (*b*) They might remain *in loco*. As a result, after the absorption of the necrosed tissue in which they had been placed, the bacilli would find themselves placed in a fresh nutritive medium, and thus lead to a fresh local outbreak.

2. Another result may follow. The necrosed tissue may not be absorbed. Consequently (*a*) the living bacilli would find themselves in a medium unsuited for their nutrition, and they would probably die in the already necrosed tissue surrounding them; but (*b*) before this destruction of the bacilli could be effected accidental circumstances might intervene and prevent its being effected. One could readily conceive that the mass of necrotic tissue might be so affected by traumatic influence—e.g., a blow—that the resorption of the necrotic tissues might be greatly accelerated, and at the same time the bacilli would be set free, either to enter the circulation by absorption, or to set up a renewed tubercular process in the affected part. Even after cheesy

degeneration had set in the same might result, and traumatic causes might lead to renewed activity in such a centre. From such considerations the lecturer was led to the conclusion that Koch's method was to be regarded only as one part of the medical treatment of tuberculosis, and that it must be employed in combination with surgical methods. This view, he believed, had not previously been expressed since the publication of Koch's discovery. He would draw attention to a very important observation made by him on a patient suffering from tuberculosis of one of the joints. An abscess formed in the affected joint, and when it was opened the necrotic tissue was discharged. Much information, it was hoped, might be learned from the careful and minute examination of the discharge as to the changes undergone by tubercular tissue which had been acted on by Koch's liquid.

Dr. Koehler summed up his views on Koch's method as follows: 1. It is quite certain that Koch's liquid enables tubercular deposits to be discovered in the earliest stage, and in cases where their existence had entirely escaped notice. 2. It is a sure means of differential diagnosis in cases where other complicating diseases occur, which present the same or similar appearances to those found in tuberculosis. 3. Even though the extreme benefits hoped for from Koch's method, especially by the general public, should not be derived, still its discovery must be regarded as one of the most important ever made in medicine.—*Lancet, Dec.* 13, *p.* 1293.

30.—ON DR. KOCH'S TREATMENT OF TUBERCULOSIS.

(From The Lancet's Special Commissioner in Berlin.)

One of the most valuable additions to our knowledge of the nature and effects of the treatment of tuberculosis by injection with Koch's liquid has appeared from the pen of Dr. O. Israel, who is senior pathological assistant in the Pathological Institute of Berlin.

The first case reported on by Dr. Israel was that of a man under the care of Dr. Koehler in the Charité Hospital, who had received thirteen injections with Koch's liquid (the last on Nov. 13th ult.). This patient suffered from tubercular disease of the right ankle-joint. As stated by Dr. Koehler [see preceding article] the extent of the rise in temperature in a patient after injections of Koch's liquid by no means always corresponds to the quantity of Koch's liquid injected. For instance, the temperature of this patient rose to 40·2° C. (104·4° F.) after an injection of 6·3 c.cm. of Koch's liquid; but after an interval of treatment lasting thirteen days an injection of 0·6 c.cm. only caused a rise to 37·6° C. (99·7° F.). An abscess formed in the right ankle-joint of this patient, which was opened on Nov. 21st by two incisions, one above the external malleolus and one below the internal malleolus. The incision

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opened two distinct abscesses which were about 8 to 12 mm. beneath the skin, and whose walls consisted of granulations covered with a cheesy deposit. The granulations extended as far as, but not into, the subcutaneous fatty tissue. So far as could be judged by the appearances when the incisions were made, the divided skin and subcutaneous fatty tissue had undergone no noticeable change. But next to the latter was found a layer from 3 to 5 mm., thick, reddish-white in colour, and rather vascular, in which numerous thickened portions, and here and there whitish-coloured vessels, were to be seen. Next to this came a layer, about $1\frac{1}{2}$ to 2 mm. thick, of soft cheesy substance, very opaque, and of yellowish colour. From the cavities of the abscesses there was discharged thin pale-yellow pus, mixed with numerous small masses of cheesy material. Out of some few recesses of the cavities there was discharged, on pressure, some thick, tenacious pus, of a rather deep colour. One of the most remarkable features of the contents of these abscesses was the large pieces of decayed tissue, some of them 2 cm. long and 1 broad, saturated with pus, and very like the necrotic tissue found detached in acute abscesses. But the condition of the parts was quite distinguishable from that of phlegmonous suppuration by its distinct limitation, by the absence of every appearance of hemorrhage, and also by the fact of the walls of the cavity being covered with a thick, continuous, cheesy deposit. Examination of the pus made on the spot showed that besides fatty and albuminoid detritus, it contained a far greater quantity of pus corpuscles than is usually found in softened tubercular tissue.

A few of the pus cells had undergone fatty degeneration; the majority were distended and of rather large size; the matter coagulated on the addition of acetic acid, and several small nuclei became visible in a large number of the cells. The pus was also rich in mucin. Specimens duly prepared and stained contained a few tubercle bacilli, 1 to 3 in each preparation.

Two questions of the greatest interest present themselves for further investigation. First, in reference to the point raised by Koch himself, as to the disappearance of tubercular tissue which had become necrosed under the influence of injections of his liquid; secondly, as to the extension of the bacilli into tissues not yet necrosed, and apparently tubercular. It has been proved by Baumgarten that in cases of progressive tubercular disease, the mere appearance of bacilli in the tissues of a certain part does not immediately induce proliferation of the tissues, which subsequently ends in necrosis. On the contrary, a certain, though moderate, multiplication of the bacilli *in loco* is a necessary condition for the occurrence of such necrosis. Two supremely interesting questions present themselves to all interested in Koch's method of treating tuberculosis: (1) Are tubercle bacilli to be found in tissues (of

tubercular patients) which show no reaction after injection of Koch's liquid? or (2) does reaction occur in all places wherever bacilli are present?

Pretty certain evidence of localised cell proliferation can be had in the case of tissues preserved in alcohol, when they are counter-stained, after the bacilli have first been stained. But it can only be proved with certainty when nuclear fission is distinct.

Cursory examination of a portion of the discharged material showed in the particles of necrotic tissue pure fibrous connective tissue and numerous amorphous cheesy particles containing pus cells; further, here and there, capillary vessels filled with decolourised blood-corpuscles. The wall of the abscess was about 1 cm. thick, and consisted of amorphous, very opaque granular matter, almost entirely soluble in acetic acid. Examination of a section of this wall, by a low power, showed next to the layer just described a second layer, about 0·4 to 0·6 cm. thick, which was much less opaque than the first. Here and there were places which had a cloudy appearance, and there were also many dark points arranged in rows. This layer was separated from the third zone, or that of living granulation tissue, which appeared perfectly translucent, by a defined, irregular margin. The dark points proved to be cells which had undergone fatty metamorphosis, while the light cloudy portions, which readily cleared when treated with acetic acid, consisted of partially necrosed tissue. More minute microscopic examination of portions of the tissue, after hardening, &c., showed a distinct zone of cells which had undergone fatty degeneration at the margin of the necrotic tissue. In some parts this was fully 0·6 cm. broad. It was particularly dense at the margin of the living tissue.

Examination of the preparations after staining showed in the granulation layer, which was 2 to 3 mm. broad, large well-developed spindle cells, delicately walled vessels, and very few caryokinetic cells. Fresh inter-cellular substance could be seen at many points between the spindle cells. Giant cells were also found scattered in the tissue next the necrotic points, and also a still larger number of Mastzellen. Leucocytes, especially multi-nuclear ones, were visible in moderate number near to the necrotic tissue, and a few actually in it. The necrosed tissue was separated from the living tissue by a very sharp dividing line, the latter being plainly distinguishable by the characteristic complete staining of the cell nuclei. The necrosed tissue nearest this dividing line contained numerous deposits of chromatin, with here and there an uninjured nucleus, but nearer to the internal surface of the abscess no chromatin was to be seen.

Very few tubercle bacilli were to be found in the necrosed tissue, and none at all in the healthy tissue, or in the giant cells of this latter. Both Ziehl's solution of carbon, fuchsin, methylene blue,

and also Ehrlich's gentian violet solution in anilin water were employed for staining. Neither process showed tubercle bacilli in the living tissue, although many sections were examined with a view to arriving at a correct conclusion on this point. But tubercle bacilli were only found in the cheesy matter here and there deeply stained, and sometimes broken up. Hence it may be concluded that if tubercle bacilli are present outside the dead tissue, they are exceedingly few in number.

In order to decide whether the bacilli found in the pus and necrosed tissue are still virulent or not, a guinea-pig and rabbit were inoculated with some of the particles of detached tissue found in the contents of the abscess. The rabbit was inoculated in the anterior chamber of the eye. The result of the inoculation cannot, of course, be known for some time.

The second case referred to by Dr. Koehler, that of a man suffering from rheumatic arthritis of the ankle-joint, showed a remarkable contrast to the above case. The patient had received seven injections (the last on Nov. 7th), without showing any local reaction in the ankle-joint, but a distinct local reaction occurred in a cicatrix, some 5 cc. long, on the right side of the neck. The neighbourhood of this cicatrix became diffusedly reddened as a result of the last reaction, and another small red punctiform cicatrix existed above it. Both cicatrices were excised by Dr. Koehler. Sections of this cicatricial tissue showed it to consist of compact connective tissue, covered with proliferated epithelium, showing leucocytes everywhere, and in some parts great numbers of them. Besides the large spindle cells found in the cutaneous tissues, there were groups of numerous giant cells and some few Mastzellen. But there was no arrangement of epitheloid cells such as is suggestive of tubercle, nor was there any necrosed material. But tubercle bacilli were not found either in the cells or free in the tissue, although only reagents were used which had been proved perfectly active. It is not to be concluded that isolated tubercle bacilli might not exist in some parts of the cicatrix; but from the results of microscopic examination of two different parts of the cicatrix it may be concluded that if there are any, they must be very few in number. In this latter case there was no structural evidence of the existence of tubercle. The great number of giant cells found is remarkable, and their occurrence suggests the earlier existence of tubercle, without at the same time affording necessary proof of it. Further, the infiltration with leucocytes and the minute drop of pus at the bottom of the fistula in the cicatrix must be connected with the reaction which occurred three days previously after the injection of Koch's liquid. From the history of the case, which includes among other facts the extirpation of tuberculous glands, and from the diagnostic effects of Koch's liquid it cannot be doubted that tubercle existed in this case. It

may therefore be assumed that as necrosed tissue is removed by the leucocytes observed in the liquid with which the tissues were infiltrated, bacilli may be got rid of in the same way.

At the request of Dr. Koehler the scabs formed on the surface of a lupus ulcer in the case of a patient treated by Koch's method were examined bacteriologically. After prolonged searching, tubercle bacilli were discovered, which no doubt had been brought to the surface along with the fluid exuded from the tissues. Observation of the joint, which was distinctly tubercular, seems to point more distinctly to a curative action of Koch's liquid than to the cure of the cicatrix, which only showed a small amount of tubercular deposit.

It is not possible to speak definitely as to the condition of every part of the cavities of the articular abscess from examination of parts of the detached tissues only. In affections of this kind very few tubercle bacilli are usually found; on the other hand, tubercles, especially if of long standing, which show but few bacilli, are usually most distinct in the granulation tissue. But in the case under notice there were neither tubercle nor bacilli in the living tissue, and there were much fewer giant cells than in the other case. It was only in the necrosed tissue that a few bacilli were found, both in the zone of tissue evidently quite freshly necrosed, as in the non-nucleated material, and in the pus from the abscess. There are reasons for doubting that such a double zone of necrotic tissue is of regular occurrence in such cases; but it appears quite legitimate to assume that in the particular case under consideration, the occurrence of these two zones was connected with progressive necrosis, induced by the injection of Koch's liquid.—*Lancet, Dec.* 6.

31.—DR. KOCH'S METHOD OF TREATING TUBERCULOSIS.

By G. A. Heron, M.D., F.R.C.P., Physician to the City of London Hospital for Diseases of the Chest.

The mode of action of Dr. Koch's fluid within the body is not yet fully known. This much, however, is certain; tubercle bacilli are not destroyed by it in the tissues. It is upon the living tubercular tissues encircling the tubercle bacilli that the remedy produces its effect, and Koch says of this action that there is, "as is shown by the visible swelling and redness, considerable disturbances of the circulation and, evidently in connection therewith, deeply seated changes in nutrition, which cause the tissue to die off more or less quickly and deeply, according to the extent of the action of the remedy." "To recapitulate," he goes on to say, "the remedy does not kill the tubercle bacilli, but the tubercular tissue; and this gives us clearly and definitely the limit that bounds the action of the remedy. It can only influence living tuberculous tissue; it has

no effect on dead tissue, as, for instance, necrotic cheesy masses, necrotic bones, &c., nor has it any effect on tissue made necrotic by the remedy itself."

In dead tubercular tissue living tubercle bacilli are often found. If the organisms so situated do not escape in some way from the body, they may find a nest for themselves there, and so set up fresh centres of tubercular disease. This fact clearly indicates that the treatment of tuberculosis by this new remedy must be continued for some time. From what is now known, it seems likely that about six weeks will be required to rid patients in the early stage of consumption of the symptoms of their disease. Whether this does or does not mean the complete cure of the disease is at present a question which will be answered conclusively by patients treated in hospital wards. It is in the highest degree probable, as every bacteriologist will understand, that relapses will occur. They must be treated on the principles already laid down by Koch, and their importance as a factor in the ending of the case must be worked out in public hospital practice. This I can say concerning the success which attends the use of this remedy in tuberculosis. I have never seen in a considerable series of cases treated by any remedy such uniformly good results, nor results so favourable to the patients. I do not, in what I have just said, include cases of advanced lung tubercle. Of that class of patients I have seen too few treated in the new way to entitle me to speak of them from my own knowledge. What we have heard and read of such cases in connection with this treatment leads us to expect at most temporary amelioration of their condition. Attention cannot be too forcibly drawn to what Koch says, in his paper of Nov. 14th, concerning the grave responsibility which will in future rest upon medical men, who leave any means untried to diagnose tubercular disease in its earliest stages. To that end the examination of the sputum ought, he says, to be much more frequently practised than it is to-day in Germany. Speaking from an experience in that direction which is not small, I venture to say that this remark of Koch's applies with at least quite as much truth to England as to Germany. Now that we have the means, in this new remedy, of holding out to our patients, who are in the early stages of tuberculosis—whatever form the disease may assume—the highest probability of a cure of their condition, it will, in my opinion, be a very grave reproach to any medical man who neglects to make an early diagnosis of tuberculosis, and, having done so, postpones needlessly the systematic use of Koch's remedy.

Koch has said that the action of his remedy consists in the destruction of living tubercular tissue. The destroyed tissue must be thrown off or absorbed. We might, perhaps, feel uneasy as to the consequences of this, even in some cases of lung tubercle

in its early stages, and especially in tubercle affecting the larynx, where the swelling, which is part of the effect of the remedy, might conceivably prove dangerous. Experience has, however, shown that, in the considerable number of such cases already treated, no serious risk has arisen. It is a fact that the mucous membranes of the tubercular larynx, while under this treatment, do not swell to such an extent as to interfere very seriously with respiration. Even in advanced cases of lung tubercle, with excavation of considerable portions of lung tissue, there have been no ill effects from the treatment, when it has been conducted with careful attention to the regulation of the dose of the remedy.

The remedy is a transparent, reddish-brown fluid, not unlike brown sherry in appearance. It has no sediment, and when undiluted does not readily decompose. When diluted with distilled water it is, on the contrary, apt to decompose. Bacterial growths quickly appear in it, and it becomes turbid. In this condition it is unfit for use. Its decomposition in dilution is prevented by boiling it, but that process is not necessary if the dilution be made with a half per cent. solution of carbolic acid in distilled water. It should be remembered that both by the frequent boiling of the dilution, as well as by the mixing of it with carbolic acid in the way described, the vigour of the action of the remedy is impaired, and therefore fresh dilutions ought only to be used. Experience has, however, shown, I am told, that a 1 per cent. dilution of the remedy made with distilled water, containing $\frac{1}{2}$ per cent. of carbolic acid, remains efficient at the end of one week. The remedy is introduced into the body subcutaneously by means of a syringe which Koch devised for his bacteriological work. It has no piston or washers, and consists of four parts:—An indiarubber ball, with a small hole in it. This ball is fixed upon a hollow metal stem, furnished with a stopcock; into the other end of the metal stem there fits a glass tube, pointed at the further end, and graduated to 1 cc., each division representing a milligramme. Upon the pointed end of the glass tube there fits a hollow needle. In using this syringe the glass tube, with the needle affixed, is detached from the metal stem and filled with absolute alcohol. The metal stem and ball are then replaced in position, and the alcohol gently expelled. Every day before using the syringe I think it well to disinfect the metal stem and the indiarubber ball. Alcohol, however, causes cloudiness in the dilutions of the remedy, and therefore it is necessary to get rid of it as much as possible. For that purpose I wash out the syringe with a little distilled water.

The dose of the remedy has been sufficiently well fixed for all practical purposes. In a healthy man 0·25 cc. produces an intense effect. Koch thus describes the symptoms produced by that dose on himself, after it had been injected into his upper arm: "Three

to four hours after the injection there came on pain in the limbs, fatigue, inclination to cough, difficulty in breathing, which speedily increased. In the fifth hour an unusually violent attack of shivering followed, which lasted almost an hour. At the same time there were sickness, vomiting, and rise of body temperature up to 39·6° C. (103·3° F.). After twelve hours all these symptoms abated; the temperature fell until next day it was normal, and a feeling of fatigue and pain in the limbs continued for a few days, and for exactly the same period of time the site of injection remained slightly painful and red."

1 cc. of a 1 per cent. solution—that is to say, a dose of 0·01 cc. of the remedy—is the smallest dose which affects healthy adults, and the symptoms, more or less marked, following its adminstration are, in the majority of cases, slight pain in the limbs and a sense of transient fatigue. Only a few persons after this dose show a rise of temperature up to not more than about 100° F. The word "reaction" is used to indicate the symptoms, mild or severe, which follow upon the use of the remedy. In non-tuberculous adults there is no real reaction consequent upon the administration of any dose of the remedy, less in amount than 0·01 cc.; therefore, the presence of reaction in the adult after a dose of less than 0·01 cc. of the remedy shows the presence of tubercle in the patient. If in the adult no reaction were obtained by any dose short of 0·01 cc., then it would be certain that the case in question was not one of tuberculosis. This is a law to which no exception has hitherto been found, and it gives the remedy great diagnostic value, which, it seems likely, will be one of its most useful clinical applications. The law applies to both man and beast, and to all tubercular conditions. Already cases have occurred in which the presence of tuberculosis was not even suspected, until the remedy was injected and reaction followed.

The dose of the remedy is regulated in tubercular cases by the age and strength of the patient, and by the conditions of his disease. In children and weak people, and in cases of very extensive disease of the lungs, the treatment should begin with the smallest effective dose, which should be very gradually increased. In fairly strong adults with lupus, joint or gland disease, and also in cases of lung tubercle, where the disease is slight in extent, or where the case is doubtful, a full dose of 0·01 cc. may be administered with safety. But in lung disease, however slight or otherwise favourable the case may be, it is well to begin with a much lower dose. The difference in the conduct of the treatment of lung tubercle, and of lupus is that the former is treated with small doses daily, and the latter with large doses at intervals of one or two weeks. Tuberculosis of joints, bones, and glands is treated in the same way as lupus.

A first dose in early cases of lung tubercle in an adult should

be either 0·001 cc. or 0·002 cc. If reaction follows this dose, then it should be repeated after the temperature has returned to the normal point. The same dose should be continued in this way until no reaction follows its use. The dose should then be increased by one, or at most two, milligrammes at a time: each dose being repeated until it is found that no reaction follows its administration, and so on until the dose of 0·01 cc., is reached. The dose of the remedy should never exceed 0·01 cc., except as a test to ascertain whether the utmost limit of benefit to the patient has been secured, and this test should be applied to every case. The duration of the treatment in early cases of lung tubercle Koch states to be, as I have already said, from four to six weeks. If after the administration of test doses of the remedy no evidence of the presence of disease is noticed, then the case, Koch says, may "be pronounced cured." I repeat, this statement refers to early lung tubercle only.

As regards the immunity from tuberculosis which may be enjoyed by the human patient after such a course of treatment, no evidence, so far as I know, has yet been brought forward concerning it in clinical records from hospitals, though the protective power of the remedy has been established as a fact by Koch's experiments as regards beasts. The doses of the remedy are prepared as follows: Two dilutions of the fluid are in general use, a 1 per cent. dilution and a 10 per cent. dilution. The 1 per per cent. dilution is prepared by putting 0·5 cc. of the remedy into a glass vessel graduated up to 50 cc. The vessel is then filled up to 50 cc. with distilled water containing $\frac{1}{2}$ per cent. of carbolic acid. One cc. of this solution contains a dose of 0·01 cc. of the remedy. Koch's syringe is graduated in milligrammes up to a capacity of 1 cc.; therefore, if 1 cc. of this 1 per cent. dilution be placed in that syringe, each marked milligramme of it will contain a dose of the remedy equal to 0·001 cc. The 10 per cent. dilution is used exactly in the same way as the 1 per cent. dilution. Every milligramme of it contains 0·01 of the remedy, and by means of this stronger dilution, the larger doses may be given, or, by dilution, any less dose that may be needed. The subcutaneous injection of the remedy is made in the skin of the back, between the shoulder blades and the spine, or near the lumbar part of the spine. These parts are selected for this purpose because they are less sensitive than most parts of the skin, and because absorption takes place very quickly from their neighbourhood. Before giving an injection the skin around the proposed site of the puncture should be disinfected by means of a 1 in 40 dilution of carbolic acid. The needle should also previously to its been used be dipped in a 1 in 20 dilution of carbolic acid.

The reaction in tubercular cases consists in a gradual rise of temperature, beginning three to five hours of the injection. In ten

to twelve hours it reaches its acme,—namely, a temperature of 102° to 104° F. It may even rise as high as nearly 106 F. Shivering often occurs as the temperature rises, but it is not a constant symptom. Pains in the joints, increase of cough and expectoration, nausea and vomiting, headache, often frontal in position, and great prostration and drowsiness, sometimes deepening into stupor, are the symptoms of the reaction. In one instance a man who was tuberculous continued in a state of stupor for forty-eight hours, after receiving a dose of 0·01 cc. Slight icterus and a general papular eruption, which has been so very well described by Dr. Radcliffe Crocker in his paper in The Lancet of Nov. 22nd, are amongst the less frequent symptoms which follow the injection. The fever lasts, as a rule, for from fifteen to twenty-four hours, and is accompanied by an increase in the rate of the pulse and of the respiration. The fever gradually declines, and the temperature falls to subnormal, but often rises again to about 100° F., less or more, and then gradually drops to normal. The patient, as a rule, suffers but little after the fever. Cases of lupus best show the local reaction, but as Dr. Koch has perfectly described all that is meant by the local reaction, it is needless to trouble you now with a repetition of his words. I have also a case to show you which illustrates sufficiently well the early action of the remedy on lupoid tissues.—*Lancet, Dec.* 6, 1890, *p.* 1205.

32.—ON THE CURATIVE EFFECTS OF KOCH'S TREATMENT IN LUPUS AND PHTHISIS.

By Judson S. Bury, M.D., M.R.C.P., Assistant Physician to the Manchester Royal Infirmary.

In *lupus*, the improvement after a few injections is striking, and although no absolute cure has yet been recorded, experienced dermatologists admit that they have never seen lupus improve so rapidly when treated in other ways. The case of the young man in Bergmann's clinique has already been mentioned, and in his case the absence of infiltration and the softness of the tissues were noticed by several skilled observers. In another case, seen in Dr. Cornet's ward, there was an equally satisfactory condition, as a result of four injections. The patient was a woman, aged 29, with lupus of thirteen years' duration, affecting the right side of the face and encroaching on the neck. She had undergone much previous treatment, but without benefit.

In *phthisis* a much smaller dose is required than in cases of lupus, or of bone or joint tuberculosis. An injection of ·001 cubic centimetres, that is, ·1 cubic centimetre of the one per cent. solution, is usually first administered, and then the strength of the fluid is gradually increased to ·002 to ·003 to ·004, and so on till a strength of ·01 is reached. In this way, Koch says, "the patient can be

brought to bear large doses of the remedy with scarcely a rise of temperature." Strong patients may, however, be treated from the first with larger doses. It is possible, too, that by repeated injections with the lymph, the patient may not only be cured of his present disease, but may have an immunity conferred upon him from further tubercular infection, just as repeated vaccination may confer immunity from the infection of smallpox. Of the use to which this remedy may be applied in fortifying children who inherit a strong tendency to consumption it is premature to speak, and to do so would only be giving reins to the imagination.

As to the efficacy of the remedy in phthisis it is premature to make any positive assertion, and it is impossible to improve upon or to make any important addition to the following statement of Professor Koch, in regard to his own experience :—"The action of the remedy in cases of phthisis generally showed itself as follows —Cough and expectoration generally increased a little after the first injection, then grew less and less, and in the most favourable cases entirely disappeared; the expectoration also lost its purulent character, and became mucous. As a rule, the number of bacilli only decreased when the expectoration began to present a mucous appearance; they then from time to time disappeared entirely, but were again observed occasionally until expectoration ceased completely. Simultaneously the night sweats ceased, the patients' appearance improved, and they increased in weight. Within four to six weeks patients under treatment for the first stage of phthisis were all free from every symptom of disease, and might be pronounced cured; patients with cavities not yet too highly developed improved considerably, and were almost cured; only in those whose lungs contained many large cavities could no improvement be proved objectively, though even in these cases the expectoration decreased, and the subjective condition improved. These experiences lead me to suppose that phthisis in the beginning can be cured with certainty by this remedy. In part this may be assumed for other cases when not too far advanced; but patients with large cavities, who almost all suffer from complications caused, for instance, by the incursion of other pus-forming micro-organisms into the cavities, or by incurable pathological changes in other organs, will probably only obtain lasting benefit from the remedy in exceptional cases. Even such patients, however, were benefited for a time. This seems to prove that in their cases, too, the original tuberculous disease is influenced by the remedy in the same manner as in the other cases, but that we are unable to remove the necrotic masses of tissue with the secondary suppuration processes.

"The thought suggests itself involuntarily that relief might possibly be brought to many of these severely afflicted patients by a combination of this new therapeutic method with surgical opera-

tions (such as the operation for empyema), or with other curative methods. And here I would earnestly warn people against a conventional and indiscriminate application of the remedy in all cases of tuberculosis. The treatment will probably be quite simple in cases where the beginning of phthisis and simple surgical cases are concerned; but in all other forms of tuberculosis medical art must have full sway by careful individualisation, and making use of all other auxiliary methods to assist the action of the remedy. In many cases I had the decided impression that the careful nursing bestowed on the patient had a considerable influence on the result of the treatment, and I am in favour of applying the remedy in proper sanatoria, as opposed to treatment at home and in the out-patient room. How far the methods of treatment already recognised as curative—such as mountain climate, fresh air treatment, special diet, &c.—may be profitably combined with the new treatment cannot yet be definitely stated, but I believe that these therapeutic methods will also be highly advantageous when combined with the new treatment in many cases, especially in the convalescent stage. The most important point to be observed in the new treatment is its early application."

In conclusion, then, it is not too much to say that Professor Koch has discovered a remedy which promises great things, and which has, at least, established a claim to a most thorough and careful trial. The most obvious and absolutely certain fact to be observed is its power of finding out and attacking tubercular tissues. Surely, this being established, the question of absolute cure of consumption is merely one of time; a period must elapse before we can attain complete control over such a powerful and, it may be added, dangerous remedy. We do not think that we are carried away by the enthusiasm of the moment in expressing our confidence that we shall have within our reach, in the near future, an almost certain cure for the early stages of consumption, and this power once attained, the melancholy and hopeless cases of advanced phthisis, which now crowd our health resorts and hospitals, would soon be lessened in number, and, by-and-bye, altogether prevented.—*Medical Chronicle, Dec.* 1890, *p.* 199.

33.—OFFICIAL REPORT OF THE RESULTS OF PROFESSOR KOCH'S TREATMENT IN PRUSSIA.

["Die Wirksamkeit des Koch'schen Heilmittels gegen Tuberculose. Amtliche Berichte der Kliniken, Polikliniken, und Pathologisch-anatomischen Institute der Preussischen Universitaten. Berlin: Verlag von Julius Springer. 1891."]

The official report on the results of Koch's treatment of tuberculosis, as observed in the University clinics and "polikliniks," and other public institutions of Prussia, has just been issued in the form of a Supplement to the *Klinisches Jahrbuch*, a publication

which owes its existence to Cultus Minister von Gossler. The editor of the volume is Professor Albert Guttstadt, Lecturer on Medical Statistics in the University of Berlin. It includes 55 reports, of which 43 are from University clinics and "polikliniks," 2 from non-clinical departments of the Charité Hospital, 2 from the Moabit City Hospital, and 8 from pathologico-anatomical institutes of universities. The period to which the reports refer comprises, as a rule, the eight weeks from the beginning of November to the end of December, 1890; in some few cases, however, it goes down to the middle of January, 1891. The reports of Professor Fräntzel and Dr. R. Köhler begin from September 12th and October 11th respectively. The total number of patients injected during the period covered by the reports was 2,172, the total number of injections being more than 17,500. The greatest number of injections in any one case was 54. This patient was under the care of Dr. Paul Guttmann, suffering from very advanced pulmonary phthisis, and he received in all 3.345 grammes of the mother liquor. He is now in a relatively favourable condition, but there is no appreciable change in the objective symptoms. The largest quantity of tuberculin administered in any one case was 3.826 grammes. This patient (a man with pulmonary phthisis, under the care of Professor Fräntzel) received in all 43 injections. In this case remarkable improvement in the physical signs and in the general bodily condition followed the treatment, and was maintained when last heard of (in February).

The volume contains reports from Professors Leyden, Gerhardt, Senator, Fräntzel, Bardeleben (with Dr. A. Koehler), Olshausen, Jolly, Henoch (with Dr. Goerne), Lewin, Schweninger, Schweigger, Lucae, E. von Bergmann, B. Fränkel, and R. Virchow, and Drs. R. Köhler and Westphal, of the University of Berlin; Professors F. Schultze, Trendelenburg, Doutrelepont, Walb, Finkler, and Koester, of Bonn; Professors Biermer, Mikulicz, Fritsch, Neisser, and Ponfick, of Breslau; Professors Ebstein, König (with Dr. Hildebrand), and Orth, of Göttingen; Professors Mosler and Strübing (with Dr. Peiper), and Helferich, of Greifswald; Professors Weber, von Bramann, Schwartze, and Ackermann, of Halle; Professors Quincke, Edlefsen, von Esmarch, and F. Petersen, of Kiel; Professors Lichtheim, J. Schreiber, Braun, von Hippel, and Neumann, of Königsberg; Professors Mannkopff, Rumpf, Küster, Barth, and Marchand, of Marburg; besides supplementary reports from Professor Julius Wolff, of the Berlin Orthopædic Poliklinik, Professor A. Heller, of the Pathological Institute at Kiel, and Dr. Paul Guttmann and Professor Sonnenburg, of the Moabit Hospital, Berlin. Professor Koch's two papers on his remedy are published in an appendix. Finally, there is an elaborate analysis of the reports, with tabular statements of the clinical details, number and doses of injections, and

results in most of the cases, by Professor Guttstadt. We hope to publish full abstracts of the reports ; at present only a rapid summary of some of the principal inferences that can be drawn from them as to the diagnostic value of the remedy and its therapeutic effects can be given.

Diagnostic Value of Tuberculin.—*Internal Tuberculosis.*—Leyden looks upon tuberculin as of essential service in confirming the diagnosis of tuberculous disease, but in the absence of definite symptoms would not rely on it alone for that purpose. Gerhardt thinks it is not absolutely to be depended on, inasmuch as cases have occurred in which, though tubercle bacilli were undoubtedly present, the injection caused no reaction. It may, however, be useful for the differentiation of tubercle from syphilis in the larynx and lung. Schultze thinks it, within certain limits, a reagent for the detection of tubercle. Biermer expresses himself with some reserve, as he has met with two cases of certain tuberculosis with bacilli in the sputum in which continued injections produced neither general nor local reaction. Ebstein thinks the detective action of the fluid uncertain ; this opinion is shared by Mosler, Strübing, and Peiper, who, nevertheless, think tuberculin may help to show whether previously existing tubercle is cured or not. Weber says it is not a sure diagnostic agent for internal tuberculosis, and it does not give certain results in doubtful cases ; it is more useful in external disease. Quincke is at present unable to conclude that in all cases in which the fluid causes reaction there are latent foci of tuberculosis. Finkler and Schreiber place more reliance upon it, and Rumpf thinks it of service in doubtful cases. P. Guttmann speaks in the tone of an ardent believer. In pregnant women Olshausen says tuberculin has failed to produce any reaction when the existence of phthisis was certain. Fritsch thinks the fluid is of high diagnostic value in the differentiation of tubercle from cancer.

External Tuberculosis.—Bardeleben and A. Köhler admit that tuberculin occasionally fails to produce reaction in cases of external tuberculosis ; they think this may possibly be accounted for by individual idiosyncrasy or by slight differences in the fluid itself. Von Bergmann thinks it is a valuable means of differentiating tubercle from syphilis and cancer ; Trendelenburg considers it reliable except in tubercle of the testis ; Mikulicz places confidence in it ; König and Hildebrand do not value it highly ; Helferich thinks it an important aid to diagnosis ; von Bramann says it is "apparently" a sure reagent for tubercle ; von Esmarch also thinks highly of it in lupus and in bone and joint disease ; von Braun and Küster think it extremely useful though not infallible ; R. Köhler and Westphal look upon it as

superior to all known aids to differential diagnosis; Lewin considers it useful; Doutrelepont and Neisser think it of high diagnostic value; von Hippel has found it of service in two cases of doubtful eye disease.

Therapeutic Results.—*Commencing Pulmonary Phthisis.*—Leyden treated 9 cases of commencing pulmonary phthisis, but no statistics are given as to results. Gerhardt treated 15 cases, of which 4 were discharged improved and 11 are still under treatment; of the latter 3 are said to be materially improved, 1 is improved, while in 7 there is no change. Senator reports 39 cases, of which 10 have been discharged and 29 are still under treatment; of those belonging to the former category, 3 were materially improved, 3 were improved, and 4 were *in statu quo*. Of those still under treatment, 2 are greatly improved, 3 improved, 20 are unchanged, and 4 have been made worse. Schultze has treated 9, of which 1 has been discharged unrelieved, while of the 8 still remaining under treatment, 2 are materially improved, 2 improved, and 4 unrelieved. Biermer has had 12 cases, of which 2 have been discharged unrelieved, while of the remaining 10, improvement is recorded in 6 and no improvement in 4. Ebstein reports 3 cases, of which 1 was discharged unrelieved, while of the 2 others, 1 is not improved and 1 is described as worse than before the injections were begun. Of 7 cases treated by Mosler, 2 have been discharged materially improved, 1 improved, and 2 unrelieved; of the 2 still under treatment, both are improved. Of 9 cases still under treatment by Weber, 3 are materially improved and 6 are improved. Quincke reports 10 cases, of which 2 have been discharged improved, while the 8 still under treatment show no change. Lichtheim has 9 cases under treatment, of which 2 are greatly improved, 4 are improved, and 3 are unchanged. Mannkopff has 9 cases under treatment, of which 1 is greatly improved, 2 are improved, and 6 are unrelieved. Finkler has had 10 cases, of which 4 were discharged cured and 3 greatly improved; the 3 remaining under treatment were all improved. Edlefsen has 2 cases under treatment, both of which are materially improved. Schreiber reports 12 cases, 1 of which was discharged cured and 2 unrelieved; of the 9 still under treatment, 2 are greatly improved, 1 is improved, and 6 are unchanged. Of 19 cases under Rumpf's treatment, 13 are greatly improved, 5 are improved, and 1 shows no change. Of 3 cases under Fräntzel's care, 1 is greatly improved and the other 2 show no change. Of 54 cases treated by P. Guttmann, 4 have been discharged cured, 8 greatly improved, 1 improved, and 1 *in statu quo*. Of the 40 cases still under treatment, 21 are greatly improved, 10 are improved, and 9 are unchanged. Neisser reports 2 cases, both improved. Henoch has 5 still under treatment, of which 1 is improved

and 4 unchanged. B. Fränkel has 4, all of which show great improvement.

Moderately Advanced Pulmonary Phthisis.—Leyden has had 23 cases, of which no particulars are forthcoming. Gerhardt has had 34, of which 2 have been discharged unrelieved, 2 have died, and of the 30 still under treatment 3 are materially improved, 4 improved, and 23 unchanged. Senator has had 32 cases, of which 1 has been discharged greatly improved, 6 improved, and 14 unrelieved, while 1 has died; of the 10 cases still under treatment 1 is greatly improved, 3 are improved, and 6 show no change or have been made worse. Schultze has 26 under his care, of which 2 are greatly improved, 4 improved, and 20 unrelieved. Biermer reports 17 cases, of which 1 was discharged unrelieved, 1 died, and of the remaining 15, 5 are improved, and 10 show no change. Ebstein records 18 cases, of which 6 have been discharged unrelieved, and 12 are still under treatment without showing any improvement. Mosler has had 25 cases, of which 4 have been discharged much improved, 4 improved, and 14 unrelieved; of the 3 still under treatment all are much improved. Of 13 cases under Weber's care, 2 are much improved, 4 improved, and 7 unrelieved. Of 21 under Quincke not one shows any improvement. Of 16 under Lichtheim, 1 has died; and of the 15 still under treatment, 9 are improved and 6 unchanged. Of 13 under Mannkopff, 1 is greatly improved, 5 are improved, and 7 are unchanged. Of 27 cases reported by Finkler, 2 have been discharged materially improved, 5 improved, and 13 unrelieved; of the 7 still under treatment, 2 are improved, and 5 show no change. Of 4 cases under Edlefsen, 1 has been discharged much improved, and 1 has died; of the 2 still under treatment, 1 is improved, the other not. Of 11 cases treated by Schreiber, 1 has been discharged improved, and 4 unrelieved; of the remaining 6, there is material improvement in 1, while 5 show no change. Of 20 cases treated by Rumpf, 3 have been discharged unrelieved, and 1 has died; of the 16 still under treatment, 6 are much improved, and 10 *in statu quo*. Of 16 under Fräntzel, 3 have been discharged improved, and 1 has died; of the remainder, 4 are greatly improved, 2 are improved, and 7 are unchanged. Of 112 cases under P. Guttmann, 16 have been discharged much improved, 4 improved, and 5 unchanged; of the 87 still under treatment, 14 are greatly improved, and 73 unchanged. Henoch has had 1 case, which was discharged unrelieved or rather worse than before. B. Fränkel has had 14, of which 1 has been discharged cured; the 13 still under treatment are all greatly improved. Lewin has had 1 case, which was discharged unrelieved.

Very Advanced Pulmonary Phthisis.—Leyden has had 20 cases, of which 4 have died; as to the remaining 16 no details are furnished. Gerhardt has had 8, of which 1 has died, and 7 are still

under treatment without showing any improvement. Senator has had 8, with 5 deaths, the remaining 3 being unrelieved. Schultze reports 14, in none of which has there been any improvement; Biermer 7, with 1 death and 6 unrelieved; Ebstein 6, of which 2 have been discharged unrelieved, while 4, which are still under treatment, show no improvement; Mosler 28, of which 3 have been discharged greatly benefited, 6 improved, and 14 unrelieved, while of the 5 still under treatment 1 is improved and 4 unchanged; Weber 22, of which 2 have died, 2 are improved, and 18 unchanged; Quincke 5, of which 1 is improved and 4 not; Lichtheim 9, with 1 death, 4 improved, and 4 unrelieved; Mannkopff 8, of which 1 is improved and 7 unchanged; Finkler 32, of which 3 have been discharged improved, and 11 unrelieved, and 2 have died, while of the remaining 16, 2 are improved and 14 *in statu quo;* Edlefsen 3, all unchanged; Schreiber 6, of which 1 has been discharged improved, 3 unrelieved, and 1 has died, while the 1 still under treatment shows no improvement; Rumpf 7, of which 1 has been discharged unrelieved, while of the 6 still under treatment 2 are improved and 4 *in statu quo;* Fräntzel 17, of which 1 has been discharged improved, 1 unrelieved, 4 have died, whilst of the 11 still under treatment 1 is greatly improved, 3 are improved, and 7 are unchanged; P. Guttmann 30, of which 5 have been discharged unrelieved and 8 have died, while of the 17 still under treatment none show any improvement; Sonnenburg 7, of which 3 are greatly improved, 3 are improved, and 1 is unrelieved; Olshausen 3, of which 2 have been discharged unrelieved, while 1 is *in statu quo;* Henoch 1, discharged unrelieved; and B. Fränkel 5, with 1 death, 1 improved, and 3 unrelieved.

On the whole Leyden is fairly satisfied with the results so far, while Senator thinks them better than could have been produced by any other treatment; Schultze is not enthusiastic; Ebstein is inclined to be pessimistic; Biermer states that in 3 cases the tuberculous process made distinct headway during treatment; Mosler, Strübing, Peiper, Weber, Finkler, and Schreiber all speak with reserve; P. Guttmann claims decided "improvement" in 38 per cent. of all his cases (164), and in 81 per cent. of the "incipient" cases taken alone.

Effect of Treatment on Symptoms in Phthisis.—1. Body weight: Of 61 cases under Gerhardt, 22 have gained weight, 17 remain as before, and 22 have lost. The gain ranged from ½ to 5 kilos., the loss from ½ to 8½ kilos. In one of Senator's cases 4.4 kilos. were gained in a week, and on several occasions there was an increase from 1½ to 2 kilos. in the same space of time. Eight patients in a very advanced stage of phthisis, with cavities, chronic diarrhœa, &c., gained weight, in some cases as much as 2½ kilos. Biermer found increase in 11 cases, the average gained being from 2lbs. to

3 lbs., and in one case as much as 10lbs. In 17 cases there was progressive loss of weight to the extent of 1 lb. to 6 lbs.; in the other cases there was neither loss nor gain. Weber noted increase in 16, and loss in 28, while in 12 it remains stationary. P. Guttmann says the weight increased in a large number of cases under his care, the maximum gain being $7\frac{1}{2}$ kilos. 2. Expectoration: Gerhardt says expectoration mostly increased at first, in 5 cases it became bloodstained. Afterwards it gradually decreased, and became more mucous. In several cases the bacilli seemed to diminish at first; in particularly favourable cases they disappeared from the sputum. Senator found that the bacilli diminished in favourable cases, but in no instance disappeared altogether. Ebstein has seen no improvement either in the quantity or the quality of the sputum, and no diminution of bacilli. Mosler on several occasions noticed that the expectoration was bloodstained, but he did not see actual hæmoptysis. Weber says cough was improved in 14 cases, increased in 15, and remained *in statu quo* in the rest. The expectoration was diminished in 18, increased in 12, and unchanged in the remainder. Lichtheim says that in almost all cases after the subsidence of the reaction both cough and expectoration were lessened. In one case expectoration and the appearance of bacilli followed the commencement of the injection, and ceased on their discontinuance. Mannkopff noticed little or no change in the quantity or quality of the expectoration. 3. Respiration: Gerhardt says that vital capacity increased in 5 out of 10 cases. 4. Physical signs: Gerhardt says that in many cases there was diminution of dulness and *râles*. Senator noticed in some favourable cases a complete disappearance of catarrhal signs and *râles*. Neither Ebstein nor Mannkopff observed any particular change in the physical signs. Fräntzel says that after treatment had been continued for a certain time the *râles* almost disappeared in some cases. 5. Night sweats: Senator records the cessation of night sweats even in cases where before the treatment they had been considerable in amount. Weber says that in 11 cases the night sweats diminished, while in three they increased. Lichtheim, Mannkopff, and Fräntzel also say the injections had a good effect on night sweats. 6. General condition: Gerhardt says that 3 patients felt so well that they insisted on leaving the hospital, though the physical signs showed that they were not cured. In 10 cases the treatment had to be discontinued by reason of weakness, persistent fever, or progressive loss of weight. Senator says the treatment had a favourable effect on the subjective feelings of a large number of patients; they looked better, and were stronger and more cheerful. Biermer, on the other hand, found that many patients complained that the treatment made them feel weaker and lower. Mosler notes an improvement in the appearance of patients. Weber says that the general condition became worse in 22 cases,

while 33 patients expressed themselves as satisfied with the effects of the remedy.

Other Tuberculous Diseases.—The general results of the treatment in laryngeal phthisis, lupus, and other forms of tuberculous diseases will be seen in the table here appended, which is literally translated from pages 904, 905.

TABLE I.—*Statistical Statement of the Action of Koch's Fluid in Tuberculosis of Internal Organs.*

Diseases.	Number of Cases Treated.	Cured.	Substantially Improved.	Improved.	Unimproved.	Died.
I.—PULMONARY TUBERCULOSIS:						
1. Early pulmonary phthisis ...	242	9	72	59	93	0
(*a*) With laryngeal tuberculosis...	30	0	10	6	13	0
(*b*) With tuberculosis of other internal organs	7	0	1	2	4	0
(*c*) With other diseases	8	0	0	1	6	0
2. Moderately advanced pulmonary phthisis	444	1	68	68	278	6
(*a*) With laryngeal tuberculosis...	85	1	10	11	37	2
(*b*) With tuberculosis of other internal organs	15	0	1	4	5	2
(*c*) With other diseases	14	0	0	0	7	2
3. Very advanced pulmonary phthisis (cavities)	246	0	7	31	162	30
(*a*) With laryngeal tuberculosis...	60	0	1	4	45	5
(*b*) With tuberculosis of other internal organs	24	0	1	2	17	1
(*c*) With other diseases	16	0	0	1	7	5
I.—PULMONARY TUBERCULOSIS (all grades taken together)	932	10	147	158	533	36
(*a*) With laryngeal tuberculosis...	175	1	21	21	95	7
(*b*) With tuberculosis of other internal organs	46	0	3	8	26	3
(*c*) With other diseases	38	0	0	2	20	7
II.—LARYNGEAL TUBERCULOSIS ...	63	1	18	23	15	4
With pulmonary tuberculosis ...	45	0	16	13	12	4
III.—PLEURISY	13	1	0	3	9	0
IV.—PERNICIOUS ANÆMIA	1	0	0	0	0	1
V.—TUBERCULOUS MENINGITIS... ...	4	0	0	1	1	2
VI.—PERITONEAL TUBERCULOSIS ...	14	1	3	3	4	2
VII.—INTESTINAL TUBERCULOSIS ...	1	0	1	0	0	0
VIII.—RENAL TUBERCULOSIS	4	0	0	0	4	0
IX.—URETHRAL and VESICAL TUBERCULOSIS	10	0	0	4	5	1
X.—TESTICULAR TUBERCULOSIS ...	18	0	2	2	14	0
XI.—DOUBLE TUBERCULOUS PYOSALPINX, with incipient pulmonary phthisis	1	0	0	0	1	0
Totals	1,061*	13	171	194	586	46

* The difference between the total number of cases and the number in which the result of treatment is given is due to the fact that a few reporters give no information as to the result.

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TABLE II.—*The Action of Koch's Fluid in External Tuberculosis.*

No.	Diseases.	Number of Cases Treated.	Cured.	Substantially Improved.	Improved.	Unimproved.	Died
I.	LUPUS	188	5	78	84	21	0
	With tuberculosis of internal organs	27	0	5	6	3	0
II.	TUBERCULOSIS OF SINGLE BONES AND JOINTS	397	9	51	119	211	6
	With tuberculosis of internal organs	48	0	1	4	22	1
III.	TUBERCULOSIS OF SEVERAL BONES AND JOINTS	40	0	3	12	23	2
	With tuberculosis of internal organs	10	0	0	1	7	2
IV.	TUBERCULOSIS OF LYMPH GLANDS	38	0	9	7	22	0
	With tuberculosis of internal organs	8	0	1	0	7	0
V.	TUBERCULOSIS OF SOFT PARTS	8	0	1	4	3	0
VI.	TUBERCULOSIS OF SCARS	4	0	0	3	1	0
VII.	SCROFULODERMA	6	1	2	3	0	0
VIII.	LEPRA	2	0	0	1	1	0
IX.	RODENT ULCER	2	0	0	1	1	0
X.	TUBERCULOUS ANAL FISTULA	3	0	1	0	1	1
XI.	TUBERCULOSIS OF SHEATHS OF TENDONS	1	0	1	0	0	0
XII.	SCROFULOUS ECZEMA	1	0	0	1	0	0
XIII.	SCROFULOUS KERATITIS OF BOTH EYES	2	0	2	0	0	0
XIV.	EAR DISEASES	16	0	0	2	14	0
	With pulmonary tuberculosis	7	0	0	1	6	0
	Totals	708	15	148	237	298	9

—*British Medical Journal, March* 14, 1891, *p.* 598.

34.—ON THE METHOD OF USING THE ICE-CRADLE IN ACUTE PNEUMONIA.

By W. SOLTAU FENWICK, M.D., B.S.Lond.

The ice-cradle is an arrangement by which a constant current of cool air can be brought into immediate contact with the surface of the body, and thus bring about a reduction in its temperature by direct abstraction of heat. This method was originally introduced by Dr. Samuel Fenwick as a substitute for the cold bath in the treatment of typhoid fever, and with this object it has now been used for many years in his wards at the London Hospital, with the most excellent results. It consists essentially of an iron surgical cradle, from the central bar of which are suspended several small zinc pails half filled with ice. The patient (who may be covered with a light sheet made of opaque gauze) lies undressed upon the bed, and the cradle, covered by a light counter-

pane, is placed over him. In order to prevent any feeling of chilliness a hot-water bottle is kept in contact with the patient's feet. The ice in the pails is renewed at intervals, and it is found convenient in practice to cover the bottom of the pails with a piece of lint in order to prevent any condensed moisture from dripping upon the body of the patient. In default of the iron cradle, a very good substitute can be easily made with a piece of strong wire, or from two wooden hoops sawn through the centre. Under such an arrangement a patient may lie for many days, the utmost required being to replenish the ice-pails, and occasionally to renew the hot-water bottle at the feet. Although the mean temperature of the cradle can rarely be reduced more than a degree or two below that of the surrounding atmosphere, it usually suffices to effect a reduction of several degrees in the bodily temperature, and, what is of more importance, to maintain it at a reduced point. In certain cases where the pyrexia has been moderate, or where ice was unobtainable, the cradle has been used without the pails, and it has been found under these circumstances that the circulation of air at the temperature of the ward was sufficient to effect a gradual reduction in the temperature of the body to the amount of several degrees. But in order to obtain the maximum value from the use of the ice-cradle it is necessary that the attention should be directed to several indispensable details in connection with its mode of application. In the first place, the cradle must be of sufficient width, for nothing tends to render a patient so hostile to the procedure as the use of a cradle so narrow as to cramp the free movement of his limbs. Secondly, it is always necessary to keep the feet warm by means of a hot bottle; for by this means any feeling of coldness can be easily counteracted, while at the same time the general comfort of the patient is considerably increased. Thirdly, the free circulation of air through the cradle is a *sine quâ non*; unless this be attended to the ice is quickly melted, the temperature of the air in the cradle rapidly rises, and little if any good results from its employment. Lastly, in all cases it is well to take the patient's temperature every three or four hours, and to remove the cradle should the mercury have fallen below 100°, or the patient exhibit any inclination to shiver. When these precautions are observed the patient soon becomes accustomed to the method of treatment, and many severe cases of enteric fever have lain beneath the cradle for as long as ten days or a fortnight with only the happiest results.

The cradle was introduced into the treatment of acute pneumonia with the view of minimising the injurious influences of fever by maintaining the temperature of the body at a point below 103°. With this object it is applied to the case until the temperature has fallen to 100°, and when this has been attained the cradle is lifted off and the patient covered with a light

blanket. As soon, however, as the thermometer again indicates a temperature of 103°, the arrangement is reapplied; and this process is maintained until the termination of the malady. But in some cases in which the pyrexia is exceedingly severe, the ice-cradle proves insufficient for the immediate reduction of the temperature; and it has therefore become our custom to supplement its action by the employment of such adjunctory measures as sponging or ice packing. Not only does the act of sponging excite the skin to the performance of its normal functions, but the sudden slight reduction of temperature it entails seems to provide the necessary impetus to the action of the cradle; and we accordingly find that a stubborn temperature will often begin to give way after the patient has once been sponged with hot water. During

The Ice Cradle.

the last eighteen months 43 cases of acute sthenic pneumonia have been treated with the ice-cradle, with the following results. In fifteen cases the average temperature amounted to 103-104°, and of these one died; in twenty-five cases the average temperature amounted to 104-105°, and of these two died; in three cases the average temperature exceeded 105° without a fatal result. In no case did death occur at the crisis, and the percentage mortality only amounts to 7. The internal remedies usually consisted of some preparation containing quinine and ammonia. The greatest attention was paid to the functional condition of the heart, especially at the time when the temperature fell spontaneously to normal, and any tendency to cardiac failure was promptly treated by the administration of alcohol or by the hypodermic use of camphor. I may also add that it has latterly become our custom to resort to systematic sponging of the body, in addition to the use of the cradle, in all cases.—*Lancet, Feb. 7, p.* 303.

DISEASES OF THE ORGANS OF DIGESTION.

35.—ON ŒSOPHAGEAL VARICES AS A CAUSE OF HÆMATEMESIS IN CIRRHOSIS OF THE LIVER.

By T. Stacey Wilson, M.B., M.R.C.P., Assistant Physician to the General Hospital, Birmingham.

I desire to draw attention to a morbid condition of the veins of the œsophagus in cirrhosis of the liver which is not often described, but which, on account of the anatomical relationship of these veins, must often occur, and which has, moreover, a most important bearing upon the etiology of hæmatemesis in this disease. I refer to the occurrence of a dilated and varicose condition of the viens at the lower end of the œsophagus. This dilatation is due to the development in this situation of a collateral circulation whereby blood from the portal vein can reach the heart without passing through the liver, thus relieving the portal engorgement which tends to occur in cirrhosis of the liver.

This collateral circulation may develop to such an extent as to prevent the occurrence of ascites in these conditions or to permit of its disappearance when it has once occurred, but the dilatation so occasioned renders these œsophageal viens liable to rupture and so to become the cause of hæmatemesis.

The nature of the circulation around the lower end of the œsophagus is such as to admit of an intercommunication between the blood in the portal vein on the one hand and that of the general systemic veins on the other, for we have here the veins of the cardiac end of the stomach belonging to the portal system, while those of the œsophagus belong to the azygos and inferior vena caval system of veins. Thus the capillaries in the mucous membrane at the cardiac orifice of the stomach are continuous with both systems. This can be proved by means of injections, either from the coronary vein of the stomach or from the œsophageal veins, and is well known. The particular channels whereby the anastomosis can take place may not be so well known, and I shall therefore describe them a little more in detail.

The blood from the cardiac end of the stomach is normally carried to the liver by means of the coronary vein, which runs from right to left along the lesser curvature and then turns back behind the stomach to join the portal vein just above its formation by the union of the splenic and superior mesenteric veins. A certain part of the blood is also taken by a smaller vein, which runs from left to right along the lesser curvature and may be described as the right or the small coronary vein, and which opens into the vena portæ near to the gastro-duodenal vein.

A third channel is that furnished by the vasa brevia of the splenic vein. The branches of these three veins intercommunicate

to a greater or less extent, and those of the first and last named form a plexus which surrounds the lower end of the œsophagus and which forms the starting point of the anastomotic channel that opens up in cases of portal obstruction.

When the passage of portal blood through the liver is hindered, the blood finds an escape through the œsophageal veins, and there is, therefore, to a greater or less extent a reversal of the normal flow in the veins mentioned, but mainly in the coronary vein

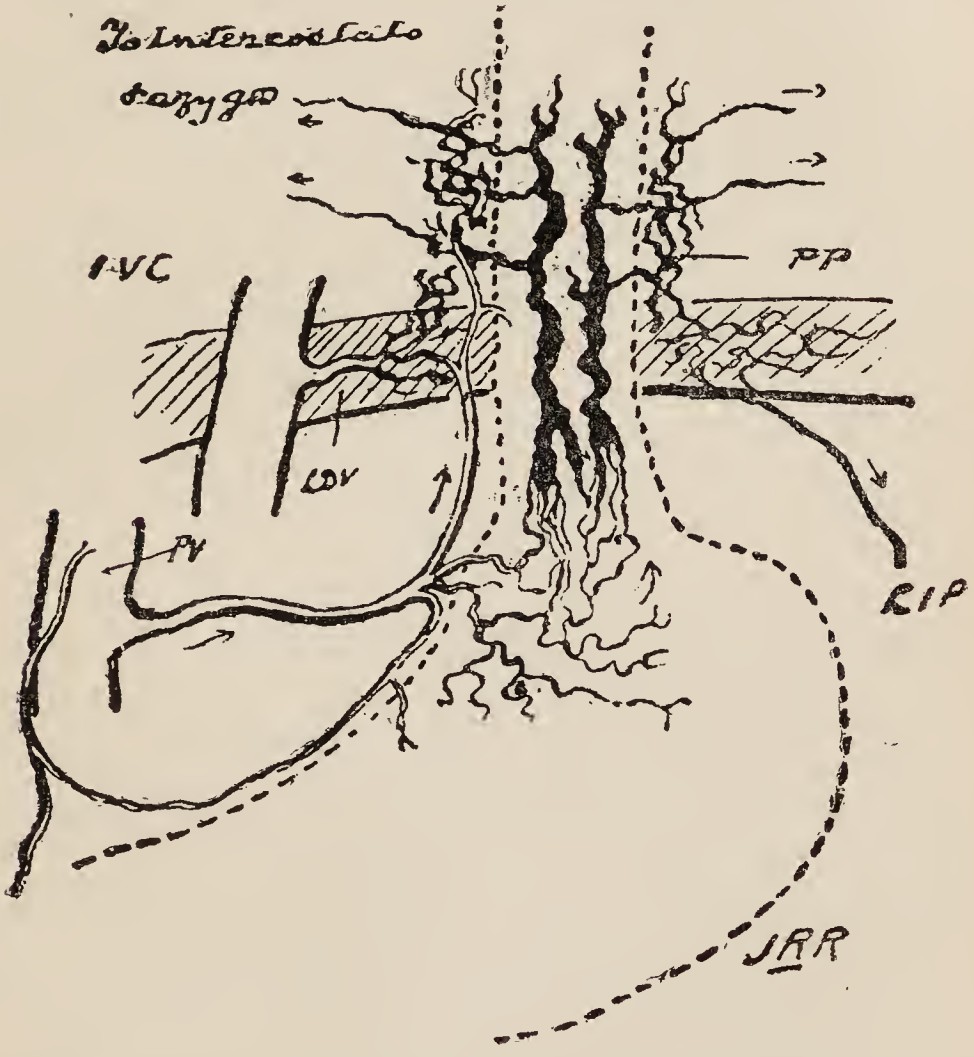


Diagram showing course of the blood in cases described. *P V*, Portal vein with left coronary sending a branch up to the diaphragmatic and periœsophageal veins; *L D V*, large diaphragmatic vein opening directly into inferior vena cava; *L I P*, left inferior phrenic vein opening into left suprarenal; *P P*, periœsophageal plexus in connection with the submucous and from which the intercostals take blood.

(that is, the left or great coronary vein). In cases where this vein is blocked by a thrombus the vasa brevia of the splenic vein take the main part in carrying the portal blood to the œsophageal veins.

Let us now consider the branches of the vena cava and azygos

veins, whereby the portal blood finds its way to the heart under these abnormal circumstances. The plexus of veins before mentioned, which surrounds the cardiac orifice of the stomach, is more or less continuous with (1) the left inferior phrenic vein, which opens into the left renal, and so into the inferior cava; (2) it is continuous with a number of small veins which run in the substance and on the surface of the diaphragm, and open directly into the vena cava as it passes through this organ. These veins play an important part in this connection, owing to the short distance that the portal blood has to travel before reaching the main current in the inferior cava. In these cases of cirrhosis, &c., the whole surface of the diaphragm may be seen covered with a dense network of vessels, which coalesce to form four or five trunks of from one-tenth to one-sixteenth of an inch in diameter, and so empty themselves into the vena cava.

The plexus above-mentioned is more or less continuous by branches through the opening in the diaphragm with another plexus of veins which surround the œsophagus above that organ. The blood circulating in these latter veins is discharged into the general venous system by various vessels; (1) by the above mentioned short diaphragmatic veins; (2) by the œsophageal branches of the azygos minor; (3) by the œsophageal branches of the intercostal veins; (4) in the upper part of the œsophagus by branches of the bronchial and even the inferior thyroid veins.

This plexus may be called the periœsophageal plexus on account of its situation external to the muscular coat of the œsophagus. Supplementing this channel which we have just been describing is another in the mucosa and submucosa of the cardiac orifice and œsophagus. This is of more importance from a clinical point of view than the periœsophageal one.

The capillaries of this situation communicate, as before pointed out, with both systems of veins, and in cases of portal obstruction they become dilated to form an extensive venous plexus in the submucous tissue which reaches from the stomach for a considerable distance up the œsophagus, and empties itself by means of occasional larger branches which pierce the muscular coat into the periœsophageal plexus, and so into the systemic veins. This plexus, owing to its situation, has been called the submucous plexus. In this submucous plexus we have a communication between the two systems of veins which is normally of little importance, but which may become under pathological condition of great importance. The tissues here are soft, and we find in cirrhosis of the liver and similar conditions the veins of the mucosa and submucosa opening up under the pressure of the engorged portal system until they become very much enlarged, and we can sometimes find two or more veins of one-quarter to one-third of an inch in diameter coursing in the mucous membrane of the œso-

phagus and evidently taking a most important part in carrying on the portal circulation.

In this connection I should like to direct attention to the important part played by the sphincter muscle of the cardiac orifice of the stomach in regulating the amount of communication that takes place between the two venous systems at this spot.

In health, the action of this muscle is such, probably, as to prevent any considerable reflux of blood through this submucous plexus from the coronary into the œsophageal veins; but when the pressure in the portal system undergoes a pathological increase, this restraining influence is overcome, and the portal blood is enabled to find an escape by this route.

I judge that the sphincter has a restraining action of this kind from the appearance presented by the veins of this part when the portal circulation through the normal channels is obstructed. In such cases, so far as I have observed, the dilatation of the veins when present is always greatest below and above the sphincter, where, as within the area of the muscle itself, their place is largely taken by smaller but very numerous straight veins.

As soon as the possible existence of large and thin-walled varicose veins in the mucous membrane of the œsophagus is recognised, the possibility of their rupture, leading to extensive hæmorrhage into the œsophagus or stomach, becomes apparent.—*British Medical Journal, Dec* 27, 1890, *p.* 1459.

36.—ON THE CLINICAL SYMPTOMS AND TREATMENT OF VARICES OF THE ŒSOPHAGUS.

By T. Stacey Wilson, M.B., M.R.C.P., Birmingham.

The clinical symptoms are very obscure, in fact there may be, and often are, none at all until a sudden and profuse hemorrhage occurs, and this attack may be followed immediately by a period of several years' duration as free from symptoms as those preceding the attack. The suddenness and copiousness of the hemorrhage, together with frequently a freedom from admixture with gastric contents and an absence of any signs or symptoms of gastric ulcer, form a very characteristic group of symptoms, and one which may fairly arouse a suspicion of ruptured varicose veins. When in addition to the above there are signs or symptoms of cirrhosis, and more especially the disappearance of an ascites, the presence of œsophageal or gastric atrices may be diagnosed with considerable certainty.

The occurrence of vomiting is not invariable when the blood passes into the stomach, and then melæna is the only symptom. In this case the diagnosis of varices would not be so easy, although some authors have gone so far as to say that all cases of intestinal hemorrhage in cirrhosis of the liver are due to the rupture of these

varices. I have not known or read of such symptoms as pain or dysphagia being observed, but they might occur, and their presence might aid the diagnosis.

As to prognosis, persons suffering from this condition may live for many years, as in the case of a patient of Le Deberder's, who, after having twelve recurrences of the hemorrhage in the course of fifteen years, finally succumbed to pneumonia. On the other hand, the patient may succumb in from a few hours to a few days from the onset of the hemorrhage, and especially if it recur frequently. It is certainly a most serious condition, and the prognosis after any extensive hemorrhage must be very grave on account of the liability to a fatal recurrence.

Treatment.—The correct diagnosis here is of great importance, and the main indication will be to keep the œsophagus as much at rest as possible, and to prevent as much as possible every act of swallowing, and so favour coagulation in the veins. I think that even the swallowing of ice is likely to do more harm than good, and I can remember one case of slight œsophageal hemorrhage in a girl with some symptoms and signs of cirrhosis, probably due to scarlatina, where the act of swallowing ice was most evidently the cause of several slight recurrences of the hemorrhage.

Another most important point in the treatment is that the routine treatment of arterial hemorrhage by the administration of ergot should not be adopted. It cannot, so far as I can see, fail to do harm by driving the blood from the arterial into the venous system.

It is, I think, a question whether we should not in these cases adopt exactly the opposite line of treatment, and by means of nitrite of amyl rapidly draw a large amount of blood into the capillaries, and I believe that the fall of pressure so obtained would more than counterbalance the increased permeability of the capillaries leading to the affected area.—*British Medical Journal, Dec.* 27, 1890, *p.* 1460.

Surgery.

GENERAL SURGERY, AND AFFECTIONS OF THE BONES, JOINTS, ETC.

37.—OBSERVATIONS ON THE TREATMENT OF LATERAL CURVATURE OF THE SPINE.

By A. B. Judson, M.D., New York.

In the absence of accepted views of the etiology of lateral curvature, I assume that the deformity is an expression of inability on the part of the muscles (very likely of nervous origin) to hold the trunk erect. I am led, therefore, to advise the patient, in the first place, to give up tasks of all kinds, to practise reasonable methods of improving the health, to avoid treatment which involves muscular fatigue, and, instead of trying to hold the spine erect, to take and keep the recumbent position at will. In the next place, I advise the patient to adopt persistently, as many hours in the twenty-four as is possible, those attitudes in which the spinal column is as nearly symmetrical as may be, assuming that the increment then taking place will be on the right side of the dividing line between deformity and symmetry. The supine position, in which perfect repose is maintained with the nearest approach to symmetry, should be taken during the hours of sleep, and as much of the time during the day as is practicable. In the third place, I seek to produce lordosis of the dorsal and lumbar regions, on the theory that the patient is thus led to remove the imposed weight, or a part of it, from the bodies of the vertebræ which deviate widely from the median line to the articular processes, which, in virtue of rotation, remain comparatively near the median line. This may be done by suspension on the curved back-board, and also by using an air-pillow, about ten by eighteen inches placed under the back when the patient is supine, in such a manner that the shoulders may fall into the space between the air-pillow and the pillow for the head, and the pelvis may hang over the lower edge of the air-pillow. This position is to be assumed whenever the patient is recumbent, day or night.

In passing, I would say that suspension by the upper extremities, in any of the forms in which it is practised, is to be encouraged up to, but not beyond, the point at which it causes fatigue. In this way we can forcibly and directly separate the chest-walls for the purpose, first, of opposing the deformity, which lessens the capacity of the chest, and, second, of fortifying the health and strength, which depend largely on unimpeded respiration.

I am unable to express confidence in the use of braces applied for the forcible arrest or reduction of curvature. I can understand the application of force to straighten the knee, with pressure from before backward in the neighbourhood of the joint, and counter-pressure from behind forward at points remote from the joint, on the bony levers which compose this joint; but am at a loss when I try to straighten by pressure a column composed of a score of short, jointed bones thrown into a double or triple curvature, with the added complication of rotation in two or three directions.

Here, as on many other occasions in practice, one cannot help wishing that it were possible to do by the use of apparatus what we can do manually. Pressure made by a brace has the disadvantage that it is directed towards the centre of the body, with counter-pressure from the opposite side, also directed towards the centre. Force thus applied is useless as opposed to the rotation of the spinal column. But with the hands applied to the ribs the body may be rolled between the two palms and the pressure thus applied is not directed towards the centre and may possibly act against rotation. This can hardly be done by the use of a brace. Even if the apparatus is designed to make pressure not directed towards the centre, with a fixed point at the pelvis, with the purpose of untwisting the rotated column, it is to be feared that the force applied to reduce the rotation of one of the curves would do harm by promoting the rotation of the other curve, which is in the opposite direction, and an apparatus designed to act in both directions, with a common base at the pelvis, would probably prove to be too complicated to be useful in practice.

The only way in which I could hope to produce a favourable effect by direct force is to apply pressure by means of a steel brace from behind forward in such a way as to favour lordosis of the whole column. In this way it is quite conceivable that when the patient is erect both the primary and the compensating curves, and the rotation accompanying them, may be mitigated by a transference, as in the mechanical treatment of Pott's disease, of a part of the weight from the bodies, which deviate widely from the median line, to the processes which, by virtue of their anatomical connection, are held comparatively near the median line. Force thus applied would also affect the lateral processes on the convex side of the curve, which are rotated backward, before it reaches those on the concave side, which are rotated forward, and in this way it is conceivable that in a favourable case rotation may be forcibly and directly opposed in both the primary and secondary curves.

A general clinical view of the subject leads to the opinion that lateral curvature is not always a serious affection. It is certainly true that many persons lead happy and laborious lives with a marked deformity which is recognized by the dressmaker, and

almost no one else. In view of this we can better reconcile ourselves to the admission that it is impossible to reduce a curvature which has passed the incipient stage. On the other hand, it is also true that in cases of exceptional severity, the kyphotic deformity is extreme, rivalling the worst results of spinal caries. Treatment should therefore be thorough and persistent in the case of a growing patient. We may thus reasonably expect to avert serious deformity, and approximate symmetry as closely as the nature of the case will admit.—*New York Medical Record, Nov.* 1, 1890, *p.* 484.

38.—THE PATHOLOGY OF TUBERCULOUS JOINT DISEASE.

By W. Watson Cheyne, F.R.C.S., Surgeon to King's College Hospital, and to Paddington-Green Children's Hospital.

Tubercular disease of a joint is, as its name implies, disease in which the essential element is the presence of tubercular tissue; and I shall therefore show, in the first instance, three specimens to illustrate the three most important characteristics of such tissue. The first quality of tubercular tissue to which I would draw attention is its infectiveness. We do not find a single tubercle in a part, but as soon as one tubercle is formed others rapidly appear around it, and thus the disease goes on steadily spreading. A second quality of tubercle is its irritating character. I have said that the essential element in a tubercular disease is the presence of tubercular tissue; but, in addition to this, we also find a varying amount of chronic inflammation, and probably the greater part of the destructive changes seen in a joint is due to this inflammation rather than to actual destruction by the tubercular deposit. And this chronic inflammation is of importance not only on account of its destructiveness, but also because it enables the tubercular tissue to spread more readily and rapidly than in a healthy part. And it is in acting on this chronic inflammation that, I think, the chief effect of expectant treatment depends. By placing a limb at rest, employing extension, and applying pressure and counter-irritation, we do not act at all directly on the tubercular tissue; but these means are of known efficacy in controlling chronic inflammation, and in this case, by so controlling and diminishing the chronic inflammation, we indirectly render it more difficult for the tubercular virus to spread, and place the tissues in a better position for overcoming it. The third quality of tubercular tissue to which I would allude is that it is shortlived, and has a marked tendency to undergo a peculiar degeneration termed "caseation," and as this caseous material goes on accumulating, we by-and-bye, where the tubercles are closely packed together, come to have a collection of caseous material intermixed with fluid and pus cells, and surrounded by

tubercular tissue—i.e., a chronic abscess. In fact, a chronic abscess is nothing more or less than a tubercular tumour with a fluid centre.

Passing on now to the general pathology of tubercular disease of joints, we find that the tubercular deposit may appear in the first instance in one of two structures of the joint—viz., in the synovial membrane or in the bone, and it usually, I think, commences only in one of these structures, and not commonly in both at the same time. In the synovial membrane it begins either diffusely over the whole membrane, or more commonly, in my opinion, at one or more points, from which it spreads slowly or rapidly over the rest. In primary synovial disease the tubercles lie at first just under the surface of the synovial membrane, while the membrane and the tissues outside it become swollen, sometimes very greatly, the swelling being composed mainly of inflammatory material. Clinically, we meet with two forms of primary synovial disease—the one only seen at an early stage, where only a portion of the synovial membrane is affected; the other where the thickening involves the whole of it. In the localised form we have again two types—one, a rare condition, where there are one or more well defined, often pedunculated, tubercular masses hanging into the joint cavity; the other, where we find a somewhat indefinitely limited thickening of one part of the synovial membrane. The latter is, I believe, much the most common form, although, unfortunately, it does not often come under notice, because the disease very soon spreads over the whole of the membrane, and it is not as a rule till this has occurred that the patient applies for treatment, or that the affection is recognised. Where the whole of the synovial membrane has become involved we have all sorts of appearances, varying from very slight thickening, often complicated with clear fluid (hydrops tuberculosis) or chronic suppuration (empyema tuberculosum) in the joint, to very marked, pulpy swelling, with or without abscess formation. After the synovial thickening has lasted for some time the new tissue spreads over the articular cartilage, destroying it, and then affects the superficial layers of the bone, giving rise to the condition termed "caries."

Primary tubercular disease of the extremities of bones occurs in the form of one or more localised deposits in the bone, rarely as a more diffuse tubercular osteo-myelitis. These deposits present two chief types—in the one, the osseous trabeculæ are entirely or almost entirely absent, and the deposit is composed of a mass of cellular tissue containing tubercles usually undergoing caseation; in the other, sclerosis of the osseous trabeculæ occurs, and a mass of new bone of varying density is formed, which usually becomes more or less completely separated as a tubercular sequestrum. As time goes on these deposits gradually spread towards the surface

of the bone, and ultimately reach it in one of three situations. In some cases they are situated close to the articular cartilage, which they perforate, and thus communicate with the joint cavity; infection of the whole surface of the synovial membrane at once follows, and chronic suppuration generally occurs in the joint. In a second set of cases the deposit reaches the surface at the point where the synovial membrane is reflected on to the bone and leads to localised thickening at that part, which then gradually spreads over the whole of it, following the same course as in a primary localised affection of the membrane. In the third case the deposit reaches the surface outside the joint altogether, and a chronic abscess forms over it, while the evidences of joint disease may be slight or entirely absent. These primary deposits in bone are often difficult to recognise. In some cases they are small and situated immediately beneath the articular cartilage, and give no certain indication of their presence till they have formed a communication with the interior of the joint, when the symptoms generally become more or less acute. Where, however, the deposits are larger, they cause a considerable amount of inflammatory thickening of the bone around, and in the knee-joint, for example, the fact that there is greater thickening of one part of the ends of the femur or tibia or of the patella than of the rest points, along with other symptoms, to the presence of a deposit in that part of the bone. Additional information may also be obtained in the case of superficial bones by percussion; instead of a uniform note over the whole bone, one obtains a less resonant sound over a deposit. In some cases also, where the deposit is near the surface, a tender and often a soft spot may be made out.—*Lancet*, *Nov.* 15, 1890, *p.* 1018.

39.—ON EXPECTANT TREATMENT *VERSUS* OPERATIVE INTERFERENCE IN TUBERCULOUS JOINT DISEASE.

By Watson Cheyne, M.B., F.R.C.S., London.

[After reference to the Pathology of the disease (see the preceding Article) and to the age and social condition of the patient, Mr. Cheyne says:]

The local condition is a most important point in determining the question of expectant treatment *versus* operative interference. We may at once divide cases of tubercular joint disease into two great groups from the point of view of the question under consideration—viz., those in which chronic suppuration has occurred and those in which there is as yet no visible breaking down of the tubercular deposit. Cases in which chronic suppuration has occurred, leaving out of account for the present those in which the abscesses have burst before the patient came under notice, are no longer suitable for expectant treatment, for the day is now past when chronic

abscesses should be allowed to burst or left in hope of their absorption. It is not part of my subject to go into the treatment of chronic abscesses, or indeed into any form of operative treatment; but I may say that while I do not at all agree with the dictum laid down by Mr. Barker that the occurrence of suppuration in hip-joint disease (I do not know whether he applies it to other joints or not) is an indication for excision, I think that when suppuration occurs the whole question of operative measures should be carefully considered, and in any case we can now procure more rapid and more certain recovery by operative measures of a somewhat more severe character than simple aseptic drainage, although by that method we have had many excellent results.

Excluding, then, cases in which suppuration has occurred, and leaving out of account in the meantime those in which septic sinuses are present, we have to determine in what of the remaining cases we should employ operative measures, and in what we should content ourselves with expectant treatment. I have already pointed out that the disease probably most frequently commences not diffusely over the whole joint, but at one part from which it spreads over the rest; and thus, in cases seen at an early stage, we may either find a localised swelling or a general thickening of the whole textures of the joint. This localisation of the disease in the first instance is, I think, a point of extreme importance, for if we get the cases before the whole joint has become involved, we may, by early and free removal of the affected portions, cut short the disease and restore the functions of the joint, and therefore it is of the greatest importance to recognise the early beginnings of the disease, and not allow the favourable moment to slip by. These cases are, no doubt, very difficult to diagnose in the early stage, but I feel sure that if they are looked for a considerable number, especially of the osseous deposits, will be found and recognised. I have now operated on some half a dozen cases of this kind—not nearly so many as I could wish,—and I can recall others which came under observation before I thoroughly understood the importance of the matter in which I would now intervene by operation. Of the cases which I had affecting the ankle, tarsus, elbow, and knee, I have only had recurrence in one instance.

Of cases seen at a latter stage of the disease, where suppuration has not yet occurred, we have three great classes—viz., those where diffuse synovial thickening is accompanied by, and usually secondary to, an osseous deposit, those where there is diffuse synovial thickening alone, and those where either of the above conditions is accompanied by marked deformity. As regards the first of these conditions, I may say that, as far as I have had the opportunity of investigating the matter, I believe that, while in the case of disease of the synovial membrane complete cure, with

disappearance of all the tubercular tissue, is not an uncommon occurrence after expectant treatment, this is much less frequently the result in cases where there is an osseous deposit. In these cases the apparent recovery is too often merely a period of quiescence, rather than a cure of the disease, and therefore in these instances the trouble is apt to break out again; sometimes, after a comparatively slight injury. Hence, in cases where there is undoubtedly an osseous deposit I believe that the best thing for the patient is to interfere by operation, in the case of children by removal of the deposit and the thickened synovial membrane (arthrectomy), in adults by excision, if possible. The cases which are most likely to do well under expectant treatment are those where the disease is limited in the first instance to the synovial membrane, and more especially those where the thickening is not very marked and is pretty firm; and in children I should employ expectant treatment in the first instance in all cases of diffuse and pure synovial disease, and persevere in it so long as matters were steadily improving, or, at any rate, not becoming worse. If, in spite of treatment, the thickening steadily increases and becomes softer and other parts of the joint become involved, the question of operative treatment must, of course, be taken into consideration. Where in addition to the disease of the joint deformity has occurred which can only be remedied by operation, then the age and general condition of the patient play an important part in the decision as to whether operation should be performed at once or whether it may be delayed for a time. I think that in most cases in children where there are no other circumstances which demand operation—that is to say, where, were it not for the deformity, expectant treatment would be employed, and where excision would be necessary to remedy the malposition—it is better to leave it alone till the patient has attained adult life; of course, employing apparatus to prevent further deformity, and perhaps remedy, or at least improve, what exists. The deficiency of growth due to disuse will be less than that following excision.

The last point which I shall touch on is what form of treatment should be employed when septic sinuses are already present. Shall we simply dress the wounds and go on with expectant treatment as if there were no sinuses present, or shall we adopt some form of operative treatment? Of course, when the sinuses lead to osseous deposits outside the joint there can be no doubt that the proper treatment is to clear out these deposits and remove the wall of the sinus. Where in children the sinuses lead to thickened synovial membrane or into the interior of the joint absolute immobilisation and pressure may be employed for a time, provided that there is not much discharge and nothing in the general condition to contraindicate delay. Although in some cases great improvement follows this treatment, I cannot say that I have been favourably

impressed by my experience of it or by what I have read, and I think that in most cases where septic sinuses are present some form of operative interference is desirable. Of twenty-one cases in my statistics which were admitted with septic sinuses, and in which expectant treatment was employed, only two completely healed, and most of them were discharged from the hospital in much the same condition as when they were admitted. A septic state of the part aids the spread of the tubercular virus by weakening the vitality of the tissues, and therefore the thorough removal of the disease seems more desirable than where there is no sepsis. At first I was inclined to think that the presence of septic sinuses contraindicated arthrectomy, but of late I have several times performed complete arthrectomy in children under these circumstances, sponging the parts afterwards with undiluted carbolic acid, and with very good results.

To sum up. Operative interference is desirable in the following cases: where chronic suppuration has occurred; at an early stage, where the disease is localised to one part of the synovial membrane or bone; in many cases, at a later stage, where there is a deposit in the bone along with general synovial thickening; in cases of diffuse synovial thickening where expectant treatment has failed to arrest the progress of the disease; in cases where a better functional result can be obtained by operation; in cases, in adults, where deformities are present which can only be remedied by operation; in many cases where there are septic sinuses; in certain cases where phthisis is present, or the general condition such as to require removal of the disease; in adults more frequently than in children; in the poor more frequently than in the rich. Expectant treatment should be employed in the first instance in cases of diffuse synovial disease without suppuration provided that there are no other reasons requiring operative interference, and it should be persevered in so long as improvement follows; also at first in cases in children where osseous deposits are present in parts where they cannot be reached without excision or in cases where the presence of deposits in the bone is doubtful; also in some instances where septic sinuses are present. In any case it should be persevered in longer in children than in adults. It will thus be seen that I limit the sphere of expectant treatment considerably, and this limitation is mainly due to the fact that under aseptic precautions we can now cut into joints at an early stage, while they are as yet comparatively healthy, and remove portions of synovial membrane or bone without fear of doing harm by our operation and with a good chance of ridding the patient of his disease and getting a useful joint. The cures by expectant treatment when it is carried to excess are often obtained only at a great expenditure of time and after great endurance of pain and at a certain risk to the patient; and it by

no means follows because a good result is obtained in any given case by expectant treatment that it would not have been wiser, and that in a number of similar cases the results would not have been on the whole better, had operative measures been employed.

In thus attempting to indicate the limits of expectant and operative treatment, I am well aware how far I have come short of what is wanted; but in these diseases, perhaps more than in any other, so many points have to be taken into consideration, and so much depends on the circumstances of each individual case, that it is quite impossible to lay down rules which are universally applicable, and one cannot do more than indicate some of the chief points which must be taken into consideration in coming to a decision.—*Lancet, Nov.* 22, 1890, *p.* 1094.

SURGERY OF THE BRAIN AND NERVOUS SYSTEM.

40.—REMARKS ON THE OPERATIVE TREATMENT OF TUMOURS OF THE BRAIN.

By Victor Horsley, B.S., F.R.C.S., F.R.S., Surgeon to the National Hospital for the Paralysed and Epileptic.

[The following is taken from Mr. Horsley's paper on the Surgery of the Central Nervous System, read at the International Medical Congress at Berlin, August, 1890.]

In the treatment of tumours of the brain so many debateable points immediately suggest themselves to us that I can only attempt to touch upon a few of them, and putting in the first place the one of greatest urgency, I desire to remark upon the general routine or empirical treatment by drugs, and the inordinate length of time usually accorded to their "fair" trial before operation is resorted to. It is to my mind a most regrettable fact that there is no common consensus of opinion as to the proper limits of such a "fair" trial, and thus the operation is often only called for when the patient is quite unfit to undergo it, which certainly would appear to be unjust not only to the surgeon, but, what is of a great deal more importance, to the patient also. The two last cases I have seen were both instances of this practice; in one I removed the skull freely, and gave much relief by simply releasing the tension, and in the other refused to operate, the wisdom of which course was evidenced by the patient dying six days later. The routine treatment I allude to is that by iodide and bromide of potassium, and the point in question is not merely how long are we to continue giving these drugs when they are manifestly inoperative, but it is further complicated by a fact which we must recognise, that in many cases of sarcoma there is often a temporary and delusive improvement on the free use of

the iodide, as if it in some way reduced the activity of growth or the pressure effects of the tumour. To bring the matter to a head, I would urge that unless very notable, not merely temporary, improvement is obvious after large doses have been given for six weeks, treatment by drugs should be abandoned, and exploratory operation resorted to. The ordinary reliance on internal remedies in the treatment of tumours is so constantly shown to be futile, that further insistance on this point would be unnecessary, were it not even now so constantly a bitter disappointment to the surgeon to find that the growth has been allowed to become far too extensive to admit of removal.

The next general point is in close connection with the foregoing; I refer to the operative treatment of syphilitic cases.

It seems to be accepted by many clinicians that cerebral gummata and pachymeningitis are curable by iodide of potassium and mercury. Dr. Gowers (while of course acknowledging the notable relief which is obtainable from these remedies) has expressed himself strongly against this view. For my own part I feel certain, as regards pachymeningitis, that the disease has a great tendency to spread even if the original plaque be excised, while it is of course only moderated, not cured, by drugs. As regards cerebral gumma I am perfectly convinced from post-mortem evidence that medicinal treatment in no wise cures, and only very temporarily alleviates the trouble. For the cure of this condition and of tubercular nodules excision, according to my experience, offers the only chance for the patient.

Passing over as unnecessary to discuss the obvious advantage of removing a simple tumour with the certainty of permanent relief, I now proceed to the more important question of the proper treatment of malignant and diffusedly-growing tumours. Even where the necessity of early operation has not been recognised, these growths can be excised with temporary and remarkable benefit to the sufferer, but with, of course, an increasing risk of death from shock in proportion to the extent of the disease and the age of the patient. I have myself operated in such a case, which was admitted hemiplegic and comatose, as you see in this photograph, and from which I removed this large sarcoma, with the result that the patient walked out of the hospital but died in the following year of recurrence.

The peaceful and painless end of this man suggested that in hopeless cases of malignant growth a good deal could be done in the way of palliation. I have therefore to propose that the growth should be thoroughly explored, and if deemed irremovable that the wound should be closed. The effects are much better than might be anticipated. Not only are the intense headache and vomiting relieved, but a most interesting arrest of the optic neuritis occurs, a phenomenon which I have now observed repeatedly

during the last five years, and which, in many cases, is a source of much amelioration to the patient from the consequent recovery of sight. Further, I have observed that the operation has conferred the additional benefit of notable prolongation of life, one case in particular, on whom I operated nearly two years ago for gliosarcoma of the cortex is now enjoying very good health, and it seemed as if the effect of the interference was to check for a year the growth, for the symptoms steadily improved. A striking instance of the kind, which I shall publish shortly with all my cases, is that of a gentleman who presented the very rare condition of epileptic attacks in which the body rotated towards the left violently round the central axis, and, further, in whom the most distressing attacks of dyspnœa occurred. Having made the diagnosis of a tumour of the middle cerebellar peduncle I removed first one half of the occipital bone, and later, at the patient's own request, the other half, with the effect of abolishing the respiratory attacks, which were very painful, the severe headache, and finally the turning convulsions for a time. His life has been prolonged with much comfort nearly two years, the symptoms of pressure on the pyramidal tracts, which disappeared after the first operation, recently becoming marked again. I have operated in six such cases with no death.

To sum up, the inference is that we should operate in all cases of tumour for the sake of the relief it affords, even should it be found during the operation that cure by removal is impossible.—*British Medical Journal, Dec.* 6, 1890, *p.* 1290.

[See also *Synopsis* of this volume for articles by Mr. Horsley on the Operative Treatment of "Depressed Fracture of Skull," "Cerebral Hemorrhage," and "Focal Epilepsy."]

41.—ON TAPPING AND DRAINING THE VENTRICLES IN CERTAIN CASES OF BRAIN DISEASE.

By A. W. Mayo Robson, F.R.C.S., Surg. to the Leeds Infirmary, and Professor of Surgery in the Yorkshire College.

The following case, which is I believe one of the earliest in which the operation of trephining and tapping the ventricles has been performed, will serve to illustrate my remarks:—

A Case of Localised Meningitis, with Accumulation of Fluid in the Lateral Ventricle, treated by Operation. (Under the care of Dr. Churton and Mr. Mayo Robson. Medical history by Dr. Churton.)—A. G., aged 10, a fair, rather delicate child, was admitted into the Leeds Infirmary under my care on January 19th, 1889, complaining of pain around the left ear and over the whole of the left side of the head. She was fretful and constantly crying out, but quite conscious. (Notes were taken by Mr. Reginald F. Walker,

then house-physician.) Temperature 103·6°. She was rather deaf in the left ear, and there was a little discharge from the meatus. There was marked tenderness around the ear, especially over the mastoid process, but neither redness nor swelling. Tongue dry, brownish in centre; food taken fairly well; no vomiting; bowels constipated; urine lithatic. Pulse quick; heart normal. *Tache cérébrale* obtainable. The patient had had nocturnal enuresis since infancy; measles at 2 years of age; bronchitis a few months ago. Pain in the ear and head, with feverishness, began on December 19th; on the 22nd, the ear began to discharge pus stained with blood. This discharge continued, but in diminishing quantity. On the 12th it was noticed that the patient kept her head very rigid and complained of pain if it was moved. She also rambled at times, and there was some twitching about the angles of the mouth. There was constipation, but no vomiting. In the evening of the 18th she was worse; temperature 105°. The note made on January 22nd is as follows: Apparently no pain, but the child is restless and constantly talking. Sleeps very badly. Takes milk freely. Tongue dry and brown. No aural discharge; no optic neuritis.

A diagnosis of basal meningitis in the left, middle, and posterior fossæ was made: and on the 24th she was ordered to have a grain of calomel night and morning, and a grain of potassium iodide with tincture of bark every four hours. A week later (January 31st), she was brighter and less irritable; the temperature was normal, but the pulse was 112 and the breath-rate 32. On February 5th the evening temperature was 103·5°, and she was found to have right hemiplegia and aphasia. There was slight twitching of the arm and tonic spasm of the thumb. The child was restless and not completely unconscious; the pupils were dilated; there was double optic neuritis; no rigor.

It was thought thrombosis of some vein, possibly even of the left lateral sinus, had occurred, but during a consultation a suspicion of cerebral abscess was entertained, so that on this ground, and also with a view to possible relief of intracranial pressure, an exploratory operation was agreed upon. In the result it appeared that the diagnosis of a circumscribed basal meningitis was probably correct, the accumulation of fluid in the lateral ventricle being secondary to the meningitis.

February 6th.—An operation having been decided on, the patient's head was shaved, and a carbolic dressing applied.

Operation, February 7th.—The fissure of Rolando having been mapped out, the A.C.E. mixture was administered. A large semi-lunar flap was turned down, and the skull was trephined with a trephine $1\frac{1}{2}$ inch in diameter over the situation of the motor centre for the arm. On raising the dura mater, which appeared to be healthy, the surface of the brain was found to be compressed and

non-pulsatile. An exploring syringe was thrust deeply in various directions in the hope of reaching pus, but failing to find any purulent collection, the needle was inserted into the posterior extremity of the second frontal convolution, and pushed transversely inwards and slightly downwards into the lateral ventricle. Six drachms of clear fluid were drawn off, after which natural pulsation returned in the exposed convolutions. The dura mater was then carefully sutured by means of fine catgut, several bone grafts were placed over it, and the scalp was stitched in position, no drainage tube being employed.

On the following day, slight power of movement returned in the arm, and soon afterwards in the leg. On the third day, the patient could answer simple questions. Improvement continued, and within a month all paralytic symptoms had disappeared. The wound healed by first intention without any sign of pus, and when she went into the country at the end of a month, she seemed bright and well, could speak like other children, could use her hands perfectly, and could walk with a slight limp. When seen six months after, she was in good health and perfectly well except that she was occasionally subject to slight convulsive seizures, not accompanied by loss of consciousness, and limited to the right arm; the attacks were possibly due to adhesions at the site of operation. Bromide of potassium was prescribed, and when last seen the attacks were only occasionally recurring. The patient was shown at the Leeds meeting of the British Medical Association, August, 1889.

Remarks.—It may happen that the simple opening of the dura mater and evacuation of fluid without puncture, or that simple tapping, as in the present case, may suffice to give such relief that the balance of circulation will be restored and recovery follow, but in other instances proper drainage may be required. It might be thought that drainage of the cerebro-spinal fluid over a longer or shorter period might be in itself a serious matter, but many cases can be brought forward to prove that this is not so, and that so long as the wound is kept aseptic the fluid may escape without doing serious harm; for instance, on several occasions, after the excision of a spinal meningocele, I have seen a leaking of the cerebro-spinal fluid, in some instances for several hours, in others for several days, and in one case where I partly excised the sac of a syringo-myelocele, and replaced the spread-out nerves in the spinal canal, I deliberately drained the spinal cavity for some days, the patient making a good recovery. Other cases might be advanced where the escape of cerebro-spinal fluid after injury to the brain has not led to serious results; therefore one need have no fear of the loss of cerebro-spinal fluid *per se* doing harm; and that a drainage tube may be borne by the brain for a time with impunity is now amply proved by numerous cases.

The ventricles may be reached from the surface of the brain, and, thanks to Professor Fraser's researches in deep cerebral topography, we can tap or drain the central cerebral cavities with great certainty, either through the frontal lobes, so reaching the anterior cornua of the ventricles, or through the occipital lobes to reach the posterior horns, or laterally to reach the ventricle of the corresponding side at any part. For instance, the anterior part may be reached by pushing a hollow needle horizontally inwards through the posterior extremity of the second frontal convolution, the middle part may be reached through the lower end of the second parietal convolution, and the posterior part through the posterior extremity of the superior temporo-sphenoidal lobe.

In carrying out this procedure I would suggest the following points in the *technique* of the operation, several of which have been suggested by Mr. Victor Horsley:

1. If there be time, a purgative to be administered the day before operation.
2. The head to be thoroughly shaved and washed, and the site of the operation to be rubbed over with benzine.
3. The chief convolutions, the fissure of Rolando, and the base line to be mapped out, according to the needs of the case, with nitrate of silver.
4. A carbolic dressing to be applied, which is to remain on until the time of operation.
5. The anæsthetic, if one be required, to be the A.C.E. mixture.
6. The observance of strict antiseptic precautions.
7. In order not to lose the landmarks after the flap has been turned back, the scalp to be perforated at the necessary point by a small drill, so as to make an easily recognisable mark on the skull which will show after the flap has been reflected.
8. If the trephine opening have to be a large one a semilunar flap should be reflected, but if, as I would propose in these cases of simple tapping of the ventricles, the trephine opening be only a small one, then a simple vertical incision through the scalp should be made about three-quarters of an inch or an inch in length.
9. If drainage have to be effected the trephine opening must be larger, and then the dura mater must be reflected by an incision passing two-thirds or three-quarters round the circumference, one-sixth of an inch from the bony margin of the opening.
10. The avoidance of puncture in the course of the main vessels and through the known important parts of the brain, if possible.
11. The needle or director to be removed and reintroduced for every fresh puncture, so as to avoid lateral movement when within the brain.
12. The punctures to be made in the course of the fibres and vertical to the surface.
13. If a drainage tube is to be left in, a fine director should be

used, along which the small extremity of Professor Lister's sinus forceps can be pushed, so as to dilate the puncture, after which the drainage tube can be easily introduced by means of forceps.

Since writing this paper I have drained the lateral ventricles in a rapidly advancing hydrocephalus in an infant, but unfortunately I did not allow sufficient length of drainage tube, and when the brain began to shrink the tube slipped out of the ventricle, and failed to drain properly.—*Brit. Med. Journal, Dec.* 6, 1890, *p.* 1292.

42.—THE TECHNIQUE OF OPERATIONS ON THE BRAIN.

By W. W. Keen, M.D., Professor of Surgery in the Jefferson College, Philadelphia.

Shaving.—Under this head I wish to insist primarily on the need of shaving the head in order to determine the existence, number, and position of any scars. I have almost never shaved a head without finding several scars, with perhaps the history of only a single traumatism.

Sublimate solution.—In connection with the preliminary preparation of the patient, I also desire to emphasize the fact that sublimate solution stronger than 1 to 2,000, should not be used on the newly-shaven scalp. I have found that the ordinary 1-to-1000 solution pustulates the scalp; and even if there be no danger from it, it is a source of great annoyance which may easily be avoided. When the brain is exposed I discard all antiseptics and use boiled water only, not so much on account of the possible danger of poisoning as because the antiseptic lessens the reaction of the cortex to the electrical current.

Hemorrhage.—The position of the patient is important. Mr. Horsley always operates with his patient reclining, not very far from a sitting posture, and I think that it is a good one, as it diminishes hemorrhage, and hemorrhage and shock constitute the two great dangers of cerebral surgery. The preliminary use of morphine and ergot diminishes the calibre of the bloodvessels and is certainly of value. The application of antipyrine and cocaine (ten per cent. solution) is of undoubted value, I think, in checking general oozing, but I doubt if it is of any more value than the application of hot water; and after all, it is not general oozing that troubles us so much as hemorrhage from the large veins. Hence I think that both cocaine and antipyrine may be dispensed with.

For the arrest of hemorrhage our chief reliance must be placed on the catgut ligature. With this the large vessels, and especially the large veins, should be double ligatured before division. After they have been cut it is very much more difficult to tie them. The hæmostatic forceps sometimes hold, but more commonly they tear away, which is followed by a renewed hemorrhage, that is often controlled with great difficulty. The greatest care must be

taken that the traction is equal upon each end of the ligature, but that it is not too great—just enough to occlude the vessel and to retain their hold. To have room to cope with this formidable danger of hæmorrhage the opening in the skull must be ample. No vessel should be cut near the edge of the opening. If needful to cut it there the opening should first be enlarged by the rongeur forceps.

In addition to the ligature, hot water has yielded me very good results in many cases. But I am convinced that in at least one case I used the water too hot, and produced cerebral disturbance which contributed to the fatal result. It should not be at a higher temperature than 120° F., if indeed so high.

Hemorrhage from the superior longitudinal or from the lateral sinus is always alarming, and makes the operation speedily fatal, not only, I may even say not so much, from direct loss of blood as from the shock and the consequent loss of vitality of the nerve-centres. It recently happened to me to wound one of the large veins at its junction with the superior longitudinal sinus, in spite of the fact that I thought I was quite far enough away from that dangerous region. The reason for my being so unexpectedly near it was that in consequence of defective development the sinus was half an inch to one side of the middle line. I had recognised the defective development and had allowed for the displacement of the sinus, but as the result proved I had not allowed enough. The hemorrhage was very severe, but was quickly controlled by a pair of hemostatic forceps. During the later manipulations the forceps were detached, when another rush of blood came, and, although this, within a few moments, was controlled in the same way, the patient became moribund and died in fifteen minutes after the speedily-terminated operation, and about half-an-hour after the hemorrhage occurred. The amount of blood lost was perhaps between eight and twelve ounces, an amount that the patient could have lost from the arm or from a wound in the scalp, without such direful consequences. Hence the large veins should be carefully avoided, especially near the middle line where they empty into the sinus, and if they must be divided it should be only after two ligatures have been applied.

Should the sinus itself be wounded one of three courses is open to us. The first, adopted by my friend Dr. W. J. Taylor during the past summer, is to seize the edges of the sinus by the hæmostatic forceps, and let the forceps remain *in situ* for two or three days. The second is to pack the sinus, as many surgeons have done, and in most cases successfully. The third is to tie the sinus with two ligatures, one on each side of the wound, as has been done in a few cases.

The last manœuvre, however, is much more difficult in abundant hemorrhage following a wound of the sinus, than as a preventive

of hemorrhage when the sinus is to be deliberately cut across. The deliberate ligation of the sinus has been done a few times, once in a very remarkable recent case related to me by Mr. Horsley, in which he removed a large part of the frontal and of the squamous portion of the temporal bone, tied and divided the sinus and lifted the frontal lobes, thus gaining access to an aneurism at the base of the brain, pressing on the optic chiasm, for which he ligated both carotid arteries; a surgical feat only equalled in its daring by the brilliancy of the diagnosis, which was verified by the operation. The patient, when I last heard, was recovering from the operation. Whether he will recover from the aneurism time alone will show.

Not uncommonly after trephining, the cut edge of the bone bleeds very freely. To arrest this, Mr. Horsley informs me that he uses a paste or putty made as follows: Melt repeatedly one part of yellow wax and four of vaseline. Next, add carbolic acid one part to twenty of the wax and vaseline, and mix intimately. Then add sufficient white wax to make a mass that will be hard when cold, but that can be quickly softened by the fingers. With this (kept disinfected, of course) he "putties up" the vessels in the edge of the bone.

Drainage.—Whether drainage shall be employed, is an important question. In abscesses and other suppurative cases, continued drainage must, of course, be employed, but in ordinary operations I think the question must be decided in each case chiefly by the amount of hemorrhage. If hemorrhage has been arrested so that the wound is almost dry, drainage may be safely omitted. Mr. Horsley tell me that he has omitted drainage in all his recent cases. This is certainly the ideal operation, and the end toward which we all strive. In order, however, that we may do without drainage, the hemorrhage must be checked to such a degree that only slight oozing, if any, remains when the wound is closed.

Exploring for Abscesses.—As I have pointed out in former papers, the direction of exploration should not be obscurely described, such as "downward and a little inward and forward, &c.," but in a definite direction from the opening—*e.g.*, in the direction of the external angular process, the opposite pupil, an inch above the opposite external auditory meatus, &c. The reader then can locate the abscess when he knows the point of departure, the direction of the puncture and its depth. I have also given my reasons for preferring a grooved director to a needle in such exploratory punctures.

Avoidance of Shock.—I am persuaded by no little experience that in the head, more than in any other part of the body, we must bear in mind the lessons taught us by Dr. Cheever in his admirable paper on Shock, read before the American Surgical

Association in May, 1888. He there urged that one of the important elements of shock was the time consumed in operation, and this applies especially to operations on the brain. A cerebral operation is always time-consuming, and this is especially bad in view of the prolonged anæsthesia. It is of the greatest importance, therefore, to abridge the time whenever it can be done.

Accordingly, I always raise the periosteum with the flap, instead of dissecting the two separately. Next, one of the most important elements in time is that required for trephining. The tendency has been of late to use very large trephines. I have commonly employed the one and one-half inch trephine, and I am persuaded that anything larger than this cannot be used with advantage. I have tried a two-inch trephine, but have found that it required a longer time than if I had made two or three one-inch trephine openings, and then bitten away the bone with the rongeur forceps to any further required extent. This arises from its becoming fastened in the bone, from the impossibility of adapting it well to the curved surface of the skull, and to the different thicknesses of the bone in different parts of its circumference. I have tried also to hasten the operation by using a surgical engine, but have found it not a practicable instrument.

It is all-important also to use the battery in every case to identify the convolutions which are exposed, in order to determine in the human brain the motor value of the convolutions, if possible. In doing so, the graduated band of the fissure-meter should always be used to measure the distance of the convolution stimulated from the middle line, and from the fissure of Rolando or other well-recognised fissure. But while such determination of the motor value is important, it should not be made with too strong a current; the strength should be such as would freely move the operator's thenar eminence but no more. Nor should the time be wasted in repeated applications, further than is necessary to determine the facts. I mention the exact measurement to determine the situation of the stimulated area, because in a number of recorded cases, including some of my own, the value of such determination was practically lost by the inexactness with which the centres were located.

The dura may be sutured by either interrupted or continuous sutures, whichever will enable the surgeon to terminate the operation most speedily.

In addition to this the use of rest and of external heat from the very beginning of the operation, and of strychnine to prevent shock, and of alcohol, digitalis, and atropine to relieve it, have been forcibly advocated by Dercum, and should certainly be tried.

Replacing the Bone.—The question of closing the trephine opening by bone, is in my mind still a somewhat undecided one. In all the cases in which I have done it there is a flat surface instead of

the normal arched contour of the skull. I have not been able to see, however, that it has produced any trouble, and it certainly acts as a valuable protective. In those rather obscure cases of headache and allied disorders, in which, perhaps, the chief value of the trephining lies in the alteration of intracranial pressure, the bone should not be replaced. In all other cases I have replaced it without any deleterious results, and I am inclined to think with advantage.

If the bone is to be replaced provision must be made beforehand for its care by placing it in a 1-to-2000 sublimate solution, and it should be the sole duty of one assistant to see that this is kept at a temperature of between 100° and 105° F., by means of hot water outside the cup or bowl in which the bone is placed. I have never had any trouble in replacing a disk as large as an inch and a half, and I prefer to do this than to spend time in chipping it up. But if the bone be greatly thickened it should not be replaced in mass, but either bitten into small pieces, or if the bone be diseased it should be rejected entirely. The suggestion of Senn to close the opening by means of decalcified bone is a valuable one, especially where there has been a prior loss of substance. It has also one marked advantage in that it can be better fitted to the opening than ordinary hard bone.—*Medical News, Nov.* 1, *p.* 441.

[See also *Synopsis* of this volume for articles by Dr. Keen on "Exploratory Trephining in Intracranial Lesions," "Intracranial Lesions," "Epilepsy, Operative Treatment," and "Middle-Meningeal Hemorrhage, Operative Treatment."]

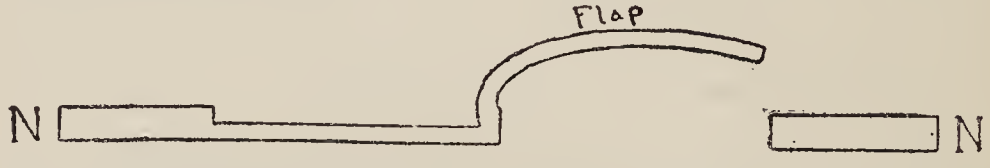
43.—A NEUROPLASTIC OPERATION FOR RESTORATION OF NERVE TRUNKS THAT HAVE BEEN DESTROYED BY INJURY OR DISEASE.

By H. H. Beach, M.D., Surgeon, Massachusetts General Hospital.

Through the connections of a tumour with an important nerve, and from the fact that such a growth derives its origin from the nerve or its close vicinity, it occasionally happens that an excision of the tumour necessarily sacrifices a section of nerve. A similar destruction of nerve tissue may attend the crushing and tearing of soft parts incident to severe railroad and machinery accidents, thereby impairing the usefulness of a limb, to a serious degree. In the cases where a nerve so injured is large enough to permit the operation to be described, the latter offers a chance for the restoration of nerve function that can be gained in no other way. Although I have had no opportunity as yet to make a practical test of its value, I am encouraged in the belief that it may be of worth, through some experiences in the junction of nerves that have been severed but not otherwise injured. Others of the profession may have cases before me, that can be helped by its appli-

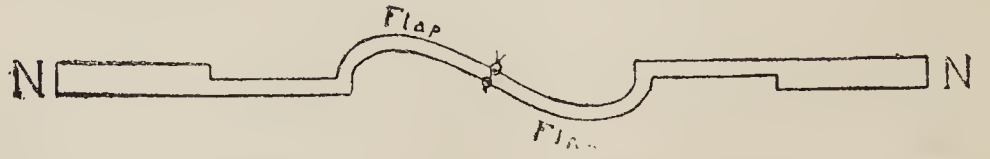
cation, and upon that ground alone, though it is against my preference, I will not defer its publication.

Operation.—For convenience, the severed ends of the nerve may be described as three inches apart. Pick up the nerve with a tenaculum or needle, and transfix it with a silk suture. The latter is useful in place of forceps for regulating the tension of a nerve during its dissection, without bruising its tissue. Care must be taken not to exercise too much traction, or the suture will tear through the nerve. Open the nerve sheath for three and one-fourth inches in either direction from the wound by following one of the divided ends, or in both directions for one and three-quarters inches. Then, having measured the distances accurately, partially divide the nerve trunk, in a vertical direction to its axis, at the required point, and split the nerve to a point within one-third of an inch of its end; thus,



N is the other severed end, to which the flap is to be joined by fine sutures, the flap being sufficiently long to avoid tension; thus,

From the character of the injury, it is possible that, in some instances, it will be more convenient to take a flap on one side of the wound, from the superior half of the nerve, and on the other side, from the under half of the nerve. This change would not materially alter the technique of the operation, as shown by the following diagram:



Should any tension be produced by either method the flaps are of insufficient length.

The method adopted for joining the ends should be governed by the accessibility of the nerve trunks without excessive or unnecessary dissection. A pair of dividers will be found convenient for measuring distances.

The opera ion, which has not, so far as I am aware, been described or employed before, may be suitably termed "Neuroplastic," and will, I hope, meet the commendation of surgeons who may have occasion for its use.—*Boston Med. and Surg. Jour., Dec.* 11, *p.* 562.

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44.—THE TREATMENT OF SPASMODIC TORTICOLLIS BY EXCISION OF THE SPINAL ACCESSORY NERVE.

By F. A. Southam, M.B.Oxon., F.R.C.S., Surgeon to the Manchester Royal Infirmary.

The three cases recorded below illustrate the beneficial effect of excision of a portion of the spinal accessory nerve in obstinate cases of spasmodic torticollis. In each instance the spasm, which chiefly involved the sterno-mastoid, was of a severe nature, quite incapacitating the patients from following their occupation; it had come on without any apparent cause, had been present for some months, and had resisted all the ordinary methods of treatment, for example, large doses of bromide of potassium, galvanism, massage, counterirritation, &c. Two patients had been specially sent to my colleague, Dr. Ross, to receive the benefit of his advice, and it was at his suggestion that neurectomy was performed.

The operation was carried out in the same manner in each case. An incision three inches long was made along the anterior margin of the upper end of the sterno-mastoid, and the nerve having been exposed by a careful dissection, about one-third of an inch of its trunk was excised just before it enters the under surface of the muscle. The immediate effect of the operation was to completely paralyse the sterno-mastoid; the spasm ceased, and the position of the head at once became greatly improved. The head does not immediately become quite straight, for it appears as though the affected sterno-mastoid, as well as the muscles of the neck generally, become the seat of slight contracture or shortening, in consequence of the long-continued faulty position in which the neck has been held. This has to be afterwards overcome by manipulation—namely, by forcibly but gently straightening the head two or three times a day—assisted by an artificial muscle. The latter is provided by means of an elastic band fixed above to a poroplastic cap, and below to a belt or plaster-of-Paris bandage round the waist, and arranged in such a way that the extension acts in a line parallel with the unaffected sterno-mastoid. In some cases a second elastic band, attached behind in a vertical line from the occiput, will be found useful. The apparatus is worn for a few weeks or for several months, until the head has regained its normal position and can be held straight without any effort on the part of the patient.

Case 1.—Female, aged 31 years, admitted April 27th, 1889, suffering from tonic contraction of the right sterno-mastoid muscle. She enjoyed good health until about six months previously, when the head became gradually rotated to the left and drawn over to the right side. When admitted the right ear was almost in contact with the shoulder, and she complained of severe pain in the neck on the same side. May 29th neurectomy was performed.

Case 2.—Male, aged 35 years, admitted April 25th, 1890. In this patient the spasm, which had been present for about five months, in addition to the left sterno-mastoid, involved slightly the trapezius and scaleni on the same side. Some clonic spasm was also present, so that the head was not only drawn over to one side, but it also exhibited a constant rotatory movement. May 27th neurectomy was performed.

Case 3.—Male, aged 24 years, admitted September 16th, 1890. The spasm had been present for about three months, and the condition was almost identical with that met with in Case 2. October 4th neurectomy was performed.

Present Condition.—In Cases 1, 2, where intervals of eighteen and six months have elapsed since the operation, the head can now be held quite straight, and the patients are following their occupation as usual. Occasionally, and generally towards evening, when tired and exhausted with their day's work, there is a slight tendency for the spasm to recur; this is, however, becoming less marked and less frequent (especially in Case 1) as time goes on, and can always be overcome by an effort of the will. In Case 3, where a month has now elapsed, the head is almost straight, and though it still requires some effort to keep it so for any length of time when the apparatus is left off, the condition of the patient is daily improving.

I have now performed the operation upon seven patients, and the results have been sufficiently encouraging to make me recommend its adoption in similar cases when palliative treatment has been tried and found ineffectual.

The most suitable cases for operative interference are those in which the spasm is tonic in its nature and confined to the sterno-mastoid; but even if other muscles have become involved, excision of a portion of the spinal accessory nerve is still worth a trial, for no other plan of treatment is likely to be attended by such satisfactory results.—*British Medical Journal, Jan.* 31, 1891, *p.* 222.

ORGANS OF CIRCULATION.

45.—ON ANEURYSM: ITS CURE BY INDUCING THE FORMATION OF WHITE THROMBI WITHIN THE SAC.

By William Macewen, M.D., C.M., Surgeon to the Royal Infirmary, Glasgow.

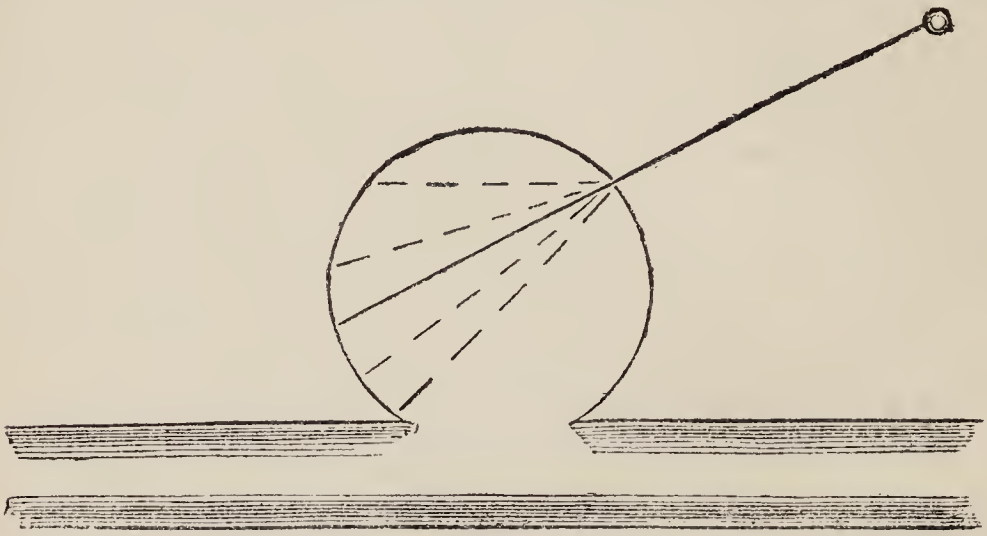
[After an exhaustive discussion shewing the desirability of the formation of white as distinguished from red thrombi in aneurysmal sacs, Dr. Macewen says:]

Granting the aim be to secure a white thrombus in an aneurysmal sac, how can this be accomplished? This may be done by

irritating the wall of the aneurysm in such a way as to induce infiltration of the parietes with leucocytes, and a segregation of them from the blood-stream at the point of irritation. The irritation ought to be just sufficient to set up reparative exudation, and must not exceed this. If the irritation be pushed to such an extent as to induce softening of the vessel wall, not only would the object be frustrated, but the pressure of blood from within might cause the aneurysm to burst. Whilst it is true that once the white thrombus has been formed in the interior of an aneurysm it tends to grow by successive accretions, and, by starting at a small irritated point in the wall of the distended vessel, it might ultimately cause complete occlusion. Yet it is better so to act upon the wall of the aneurysm as to produce either a uniform irritation over its whole surface, or to stimulate as many points in its interior as possible. In this way many foci will throw out white thrombi; at all such places the wall of the vessel is being strengthened and preserved from further dilatation. It is well if possible to secure foci all over the sac for another reason: were a white thrombus formed in one part of a sac alone, it might be possible for the blood pressure to be exerted all the more on some other part of the sac not so protected, and so in the case of a very thin wall damage might result. It would be well therefore to ascertain, as far as possible, the form and dimensions of the aneurysmal sac before inducing plastic effusion at any one part of it. This may be readily done beforehand in aneurysms of the extremities; but in those of the trunk and root of the neck it in many cases can only be ascertained by investigation within the aneurysm itself. Fortunately a very fair idea may be ascertained by the very instrument which is intended to induce the cure, and at the same time as the latter is initiated. The means hitherto employed to effect this purpose have been very simple. The instrument employed is a pin of sufficient length to completely transfix the aneurysm and to permit of manipulation within it. Its calibre ought to be as fine as possible, the strength being only sufficient to penetrate the coat of the aneurysm and the intervening tissues. This cylindrical pin tapers to a point, like an ordinary sewing needle, and has on its opposite extremity a somewhat rounded head. As the coats of aneurysmal sacs vary in thickness these pins must be made of various calibres, as those which may pass readily through one aneurysmal sac may not pass through others with thicker walls. They ought also to be finely polished, not only to facilitate their introduction, but to help to render them aseptic.

Before performing the operation the skin over the aneurysm ought to be carefully cleansed and rendered aseptic. The aseptic pin ought then to penetrate the sac and pass through its cavity until it comes in contact with the opposite side. It ought to

touch and no more. Then one of two methods may be employed; either to move the pin over the surface of the inner wall so as to irritate its surface, or to allow the impulse of the blood-current playing on the very thin pin to effect the same object. If the wall penetrated by the pin on introduction be dense the former method will be preferable, as the force of the blood-current produces such a feeble action on the thin pin as to be insufficient to move it to and fro, while it is firmly grasped by the dense wall. After acting thus for ten minutes at one part, the point of the pin, without being removed from the sac, ought to be shifted to another spot, and so on until the greater portion of the internal surface opposite to the point of entrance has been touched; this ought to be done in a methodical manner. A single insertion of



the pin through the aneurysmal sac into its interior may be sufficient to enable the point of the instrument to come into contact with the greater part of its internal surface, but in some cases puncture from various sides of the external wall may be necessary so as to reach portions of the tumour which cannot be attacked from the first puncture. While the pin is in the aneurysm it is surrounded by a portion of aseptic gauze, or moistened with an antiseptic solution. When it is withdrawn from the aneurysm, the part ought to be covered with moist antiseptic dressing, preferably a watery solution of carbolic acid, which ought to be maintained for several days. The period a pin may remain in an aneurysmal sac without doing damage is perhaps dependent on the individual and the state of the aneurysm, but it ought never to exceed forty-eight hours. It is questionable whether all the necessary advantages derivable from the irritation of the wall of the aneurysm could not be produced within a few hours. No doubt their retention for twenty-four or thirty-six hours *seems* to produce a greater effect. If the aneurysm be very large, several pins may be introduced from various points, always allowing a

considerable interval to exist between each, otherwise there might be too much damage to the vessel wall at one spot. In some instances the point of the pin has been engaged in the opposite wall of the aneurysm, and it has thus produced sufficient irritation. It need scarcely be said that the general health of the individual and the condition of the aneurysm and of the surrounding tissues ought to be carefully examined before commencing the treatment. If there be anything wrong which could be put right before operating, that ought to be done. No one would think, for instance, of introducing pins into an aneurysm that was inflamed or where the tissues in the vicinity of the aneurysm were in a state of erysipelas. It would also be necessary to render aseptic any sore in other parts of the body which the patient had. When the pin has been withdrawn, though there may be a little thickening of the tissues in the neighbourhood, there will probably be little or no diminution of the excentric impulse. Occasionally it may be weeks before any distinct or tangible thickening of the coats can be made out. In other instances this may be discernible at a much earlier period. But, as a rule, a distinct thickening of the coats of the vessel is tangible at an early period. It has occasionally happened that some weeks after the first introduction of the pins, the walls, though thickened, appeared to be so only to a slight extent; whereas when a second puncture of the sac was made, a much stouter pin was required to penetrate the coats than the one which on the first occasion slipped easily through the walls of the aneurysm, showing that there was a greater thickening than was indicated by external palpation. Further, in one instance had the amount of dense fibrous tissue within the aneurysm been rightly appreciated, it is probable that a death from suffocation would not have been permitted, at least without an endeavour being made to save the individual by operative means. It is also to be borne in mind, especially in deep-seated aneurysms, that the thickening appreciable on the external surface of the sac through which a pin has passed is much less, as a rule, than that on the part of the sac acted upon by the points of the pins, and therefore the one farthest away from the point of entrance, and which cannot be reached by manipulation. Thus irritation of the coats of the aneurysm has been in some of my cases many times repeated at intervals of weeks, and in one case of months, with the view of hastening the consummation of the cure. Though there was apparent advantage after each, it is doubtful whether the formation of white thrombi was not going slowly on independent of this interference. It is clear the coats of the aneurysm cannot be reached by the pin after they have been covered by a thick layer of white thrombi; the extremity of the pin must therefore come in contact with the dead thrombi alone. Were the previous layer of thrombus vascularised, then the secondary introduction of the

pin would be of service in coming into contact with living tissue, and setting up in it fresh irritation and fresh deposition of white thrombi.

In introducing pins, care ought to be taken to avoid injuring important structures which may be overlying the sac. The cords of the brachial plexus may be raised by aneurysm at the root of the neck; it would be necessary, in order to prevent pain, to insert the pins apart from them. Where the aneurysm is inaccessible from without, this mode of treatment could not be applied, but most of the aneurysms of the chest whose physical features can be determined, and whose limits are clearly defined, may be subjected to this form of treatment. When a sac is covered by calcareous depositions, it is possible that these may exercise a deterrent influence in the production of thoroughly organised connective tissue forming in the thrombus. The younger the patient, other things being equal, the quicker would the white thrombus form. Suppose complete consolidation may not be effected from the treatment, the thickening of the coats of the aneurysm may prolong life, especially if it be uniform. Though this method has been adopted of producing the necessary effect upon the wall of the sac, any other mode of carrying out the principle of the treatment, the occlusion of the sac by the formation of white thrombi, and its consequent organisation into living tissue, might be used, provided it showed any advantage. One would be inclined by preference to use any means which, while being equally successful and easily applied, would do away with the necessity of penetrating the sac. Let me now turn attention to some clinical evidence of the value of this mode of treatment in curing aneurysm. In doing so the cases presented are not arranged chronologically, but in pathological order.

Case 1.—*Male æt.* 32. *Aortic aneurysm, projecting above the clavicle, seen at an advanced period, treated by the induction of white thrombi within the sac. Treatment cut short within a month by fatal dyspnœa, from pressure on the trachea.*—A pin was inserted into the aneurysmal sac at the beginning of December 1887. The pin was made to transfix the cavity until it came into contact with the opposite side. After it was allowed to remain in one position for about an hour, the point was changed to a fresh surface on the internal wall, and so on until the greater portion of the sac within reach of the pin had its internal wall slightly irritated. Several times the pin was retained in the sac for twenty-four hours, and once for forty-eight hours. The pins were inserted on seven occasions, with a few days interval between each. The case seemed in every way hopeful till the attack of fatal dyspnœa. At the post-mortem the outer wall of the aneurysm was found to be $1\frac{1}{2}$ inch in thickness, the cavity 1 inch, and the inner wall $\frac{1}{2}$ inch; so that two-thirds of the aneurysm had been filled with a white firm clot.

Case 2.—Aneurysm of the upper part of the right femoral, involving external iliac, measuring five inches in diameter, cured by induction of white thrombi within the sac; patient died thirteen months subsequently from carcinoma of the tongue.—April 13th, at 12 p.m., pressure was applied to the common iliac artery until the pulsations in the sac entirely ceased. A long steel pin of fine calibre was then introduced into the sac, and passed through it until it touched the internal surface of the opposite side of the aneurysm. It was left in that position for ten minutes, when its point was withdrawn somewhat, and then directed to another part inside the sac, when, after the same interval, it was again shifted to another position. Twelve different points of the sac wall were thus acted on, the pin being left in contact with each of these places for ten minutes. At the end of two hours the pin was removed, pressure over the puncture being maintained for about five minutes. Fifteen minutes subsequently the pressure on the common iliac was gradually removed. The thin wall of the sac then seemed firmer. The pulsations in the sac were as vigorous as ever. Twelve hours afterwards the walls felt firmer, and everyone admitted that a change had taken place. This thickening of the coats became greater daily, the solidification occurring five days after the insertion of the pin. The aneurysmal sac was then converted into a solid ball, which still moved with arterial impulse, but there was no excentric pulsation.

Case 3.—Aneurysm of abdominal aorta, treated by induction of white thrombi in the interior of vessel; cure interrupted by the patient feeling so well that he determined to resume work after a month's treatment, though the tumour was not consolidated; patient still alive two years and a half subsequently.—The tumour was situated in the upper part of the epigastric region, was somewhat circular in form, and measured three inches in superficial diameter. Its dimensions from before backwards could not be measured, but it presented a marked prominence in front. The patient was subjected during the month of March, 1888, on three occasions to irritation of the internal coats of the sac, after each of which there was a notable thickening of the wall; the force of the pulsations diminished at the part, and the pain and discomfort greatly lessened. As the tumour subsided, the stomach began to overlap it in front. At the end of the month the sac had receded to such an extent that it could not be clearly made out other than a hardened mass heaving with the aortic pulsations. At this stage it was difficult to detect excentric pulsations. Unfortunately, at the end of this period, one month from the commencement of the treatment, the patient insisted upon returning to his work; he felt so well, believed he was quite better, and could not be persuaded to the contrary. He was in seeming good health two and a half years afterwards.

Case 4.—*Intra-thoracic aneurysm, probably left subclavian, accompanied by great swelling, pain, numbness, and loss of power in the left arm, treated by induction of white thrombi within the sac; complete consolidation of aneurysm and restoration of function of arm.*—Treatment: The skin was first thoroughly rendered aseptic; then, on Feb. 27th, 1889, an aseptic pin was introduced, and the dimensions and form of the internal aspect of the sac were made out as far as possible. For this purpose a pin of five and a half inches in length was used, and the whole of it was inserted, with the exception of about an inch, before the opposite wall of the tumour was reached in a downward direction. Deducting half an inch for the thickness of the tissues intervening between the tumour and the skin, that left the diameter of the cavity in a downward direction as somewhere about four inches. The sides of the cavity were much more easily approached; and although it was much more difficult to give the precise dimensions of the breadth of the cavity, it was probably about three inches. The pin was then permitted to remain in the cavity for about nine hours, its extremity being frequently changed from one part of the sac to another, its point on each occasion being left free to move over the surface of the sac as the force of the stream of blood in the interior might direct. This was repeated on March 3rd, 17th, and 24th, a gradual thickening of the walls of the aneurysm ensuing. This was marked not only by the sensation communicated to the finger externally, but by the fact that on each occasion when the pin was attempted to be introduced greater difficulty was experienced in penetrating the coats of the vessel, while at the outset a pin of very fine calibre was introduced with facility through the sac wall; it required one much stouter and more rigid to penetrate the sac during the last insertion. So much improvement attended these four introductions that they were discontinued for four months. During this period there was some improvement in the diminution of the swelling of the arm, and considerable subsidence of the pain. She was allowed to go about for a time, attending to her household duties. Subsequently there was much thickening in the aneurysm and great diminution in the pulsation; it was not so near the surface, but still there was a doubt as to whether it was not excentric. It might have been that the tumour was pushed upwards with each aortic wave, and being dome-shaped conveyed the impression of an excentric pulsation. On five subsequent occasions a pin was introduced, with the object of hastening the consolidation. On each of these it was difficult to say what the internal dimensions of the cavity were, and during the last two of them it was doubtful whether the pin entered any cavity. The walls were so thick that the pin could not be made to move to and fro as it formerly did; certainly it never reached the opposite wall of the aneurysm, and it was, therefore, question-

able whether good was derived from its use; with this feeling the use of the pins was discontinued. During the months that followed there was slow but continuous improvement, and a year subsequently to the commencement of the treatment it seemed to have completely consolidated, though there was still an impulse apparently communicated from below. From this point the tumour began to decrease in volume, the œdema totally disappeared from the arm, and the numbness and tingling sensation soon followed. Till a late period the pulsations of the radial artery continued much as they were before the beginning of the treatment, but gradually they diminished in volume, and for some months it was questionable whether the pulse could be detected at the wrist. (It is now, however, completely gone.) The power of the arm was gradually restored, and she was then able to resume all her ordinary duties.

No doubt some cases will be found more suitable for this form of treatment than others; some in which the white thrombi will form more readily and some more slowly, and possibly others in which it will not take place. Future experience will decide. I trust that this form of treatment will not be indiscriminately employed upon every case of large aneurysm, especially upon those which are beyond hope, otherwise the method will be discredited. —*Lancet, Nov.* 22, 1890, *p.* 1088.

46.—ON LIGATURE OF THE POPLITEAL ARTERY FOR THE CURE OF ANEURYSM IN THE HAM.

By Anthony A. Bowlby, F.R.C.S., Assist. Surgeon Metropolitan Free Hospital; and Surgical Registrar to St. Bartholomew's.

In Mr. Holmes's very interesting paper on "Surgery of the Large Arterial Trunks," in the British Medical Journal for Nov. 15, the question of the advisability of employing Anel's method of ligature is discussed, and the conclusion drawn by Mr. Holmes is "that no reason has been shown for the performance of Anel's operation in non-recurrent popliteal aneurysms."

I would venture to submit that there are two good reasons for preferring the ligature of the popliteal artery to that of the superficial femoral, namely, first, diminished risk of gangrene; secondly, greater certainty of cure; and, as Mr. Holmes has already alluded to the cases treated at St. Bartholomew's Hospital, I shall venture to quote some figures in support of my contentions.

During the last ten years the superficial femoral artery has been ligatured for the cure of aneurysm on twenty-two occasions, and gangrene has ensued in four cases, and recurrent pulsation, or failure to cure, in two others. Further, another case of recurrent pulsation after ligature of the femoral, performed at another hospital, was admitted for treatment. Thus, in seven cases out of

twenty-three either gangrene or failure to cure ensued, and it may be added that in no case was the gangrene the sequence of an injury to the femoral vein at the time of operation.

With regard to the gangrene, I would submit that it is less likely to result from ligature of the popliteal than from a similar operation performed upon the superficial femoral. For, in the latter case, the operation results in the occlusion of the vessel destined for the supply of the leg and foot in two places, namely, at the seat of ligature and in the popliteal space; whereas, if the popliteal be tied, the artery is closed in but one place. Further, the muscular branches of the femoral and of the first part of the popliteal, as well as the anastomotica magna being above the ligature, the circulation in the leg is necessarily better than after the application of a ligature higher up. It may also be added that in one case in which Mr. Thomas Smith did ligature the popliteal instead of the femoral for the cure of a popliteal aneurysm, pulsation returned in the tibial vessels within forty-eight hours, whilst the aneurysm became firm and ceased to pulsate.

Secondly, the failure of the ligature of the superficial femoral to stop pulsation in the sac in three cases out of the twenty-three mentioned above, indicates that failure is sufficiently frequent to demand attention. In these three cases the aneurysm was finally cured; once by pressure, and in the other two patients by ligature of the popliteal. It is certain that in such cases of failure the pulsation is maintained by the too free passage of blood from the branches of the profunda into those of the superficial femoral, and thence into the aneurysmal vessel, for it is now generally recognised that the vessel between the apex of Scarpa's triangle and the seat of aneurysm remains patent. And, this being the case, it is clear that if the popliteal itself be tied, failure from this cause could not result, a conclusion which is emphasised by the fact that ligature of the popliteal sufficed to cure both the aneurysms mentioned above after failure of the operation in Scarpa's triangle in each case, and of ligature in Hunter's canal, in addition, in one.

These facts, therefore, are apparent: (*a*) That in a certain number of cases of ligature of the superficial femoral for the cure of popliteal aneurysm the supply of blood to the limb is insufficient and gangrene ensues; (*b*) that in a few cases the blood stream is insufficiently arrested and the aneurysm is not cured. I would suggest that after ligature of the popliteal for the cure of similar disease neither of these misfortunes is so likely to ensue.

As to the objections that have been raised to the ligature of the vessel near to the sac, it may be said at once that they are purely theoretical. The examination of a number of specimens shows clearly that the upper part of the popliteal is no more likely to be diseased in a case of aneurysm at the bend of the knee than

is the superficial femoral itself, and, although opinions and teaching to the contrary are abundant, the statement I make here can be confirmed by reference to any museum, and is supported by Sir W. Savory in his paper in the Medico-Chirurgical Transactions.

Next, I would suggest that one assumption of Mr. Holmes is unwarranted, namely, that after ligature of the popliteal no circulation goes on in the sac; for, whatever may be generally understood by the operation of Anel, I venture to assert that it is most probable that some arterial blood does continue to enter the sac (after ligature of the popliteal) through the articular branches, which are generally given off quite close to or at the seat of aneurysm itself, and that some regurgitation is practically certain to result from the communication between the anastomotica magna and the anterior tibial. The objection, therefore, which is founded upon the statement that ligature of the popliteal stops the circulation in the sac, cannot be seriously considered until the accuracy of the assumption is proved.

With regard to the relative difficulty of the operations of ligature of the superficial femoral and of the popliteal, I am of opinion that there is but little choice. I am aware that ligature of the popliteal is generally considered to be a difficult operation; but, after having seen it performed on four occasions in patients and very many times in the dead body, I feel sure that the difficulties are greatly exaggerated. The artery in the upper part of the popliteal space is not nearly so deeply seated as is commonly believed, and, with this warning before them, students of operative surgery make far fewer mistakes in exposing the popliteal than in cutting down on the femoral. The chief risk arises from the proximity of the popliteal vein; but the latter is readily avoided by opening the arterial sheath well to the inner side, as in the similar operation of ligature of the common carotid. In cases of large aneurysms occupying the greater part of the popliteal space the operation should, of course, not be attempted.

Finally, I would say that, although I venture to support what may be called Anel's method, I do so because I fully concur with Mr. Holmes when, in speaking of the operation of ligature for the cure of aneurysm, he says: "But are there no dangers in the operation except hemorrhage? My own belief is that phlebitis and gangrene are in the present day the chief ill results of the operation." With aseptic wounds and ligatures gangrene is certainly more likely to prove fatal than is secondary hemorrhage, and its prevention merits more consideration than it has received. It is chiefly on this account that I have ventured thus to point out some of the reasons why the popliteal artery may be ligatured in cases of aneurysms in the ham.—*British Medical Journal, Nov.* 29.

ORGANS OF RESPIRATION.

47.—ON FIBROMATA OF THE NASO-PHARYNGEAL SPACE.—THEIR TREATMENT BY ELECTRO-CAUTERY.

By J. L. W. Thudichum, M.D., F.R.C.P.

These tumours of the naso-pharynx were formerly described as polypi, of which they represent the most severe forms. But they differ from tumours now commonly termed polypi in this, that if they are not removed by art they mostly lead to a fatal termination. Of the perniciousness of these tumours the literature of the subject contains ample evidence; death occurred most commonly by hemorrhage, spontaneous, often repeated and long continued; some cases perished from the progress of the tumour to the base of the brain, others from suffocation, whatever was the temporary symptomatic relief—e.g., by tracheotomy. Not a few cases perished in or after the attempt to effect relief by surgical means; many perished of secondary effects succeeding an operation effective or attempted—pyæmia, pneumonia, anæmia, and other accidents. The second prominent peculiarity of the fibroma is its frequent recurrence after it has apparently been extirpated; an accident which necessitates periodical examination of such patients. The third peculiarity of these fibromata is that they occur in an active state, mainly in males below the years of manhood; they most frequently come under observation in fast growing lads, but are also observed in a quiescent state in older men, when from the history of the cases it can be ascertained that they were carried by the bearers from adolescence into manhood. They mostly become quiescent, at least as regards increase, after the age of twenty-one years, or, physiologically speaking, after the completion of the structural development of the head and face. The tendency to hemorrhage continues a few years longer, but ceases with the atrophy of the base of supply by pressure. The rate of growth of these tumours is quick, and is increased, as is also the tendency to hemorrhages, when they are interfered with unsuccessfully. The tumours quickly send arms into the anterior nasal fossæ, the antrum and ethmoid, and sphenoid cavities; they appear under the zygomatic arches, or in the orbits, and produce blindness by pressure on the optic nerves.

The anatomical place from which the first growths which enlarge to these tumours mostly originate is probably the posterior end of the middle turbinated body, more rarely the pharyngeal rudimentary tonsil. The extraordinary hemorrhage which takes place in most of these cases is not rarely the first symptom which tells the patient that there is something wrong in his pharynx. In some cases it was the only symptom observed by the medical attendants. Obstruction of the meati, or even of one of them, is

not a necessary symptom of the early stage of the disease; on the contrary, tumours of considerable size may exist in the pharyngeal space without the breathing being notably interfered with, and without the voice being more than slightly altered. A frequent result of the existence of the tumour is ulceration, either on the tumour itself or on the mucous membrane. This simulates ozæna, and is sometimes mistaken for it. But in reality it is the almost constant cause of the hemorrhages. Bleeding from mere congestion, so common in cases of polypi of the uterus or rectum, seems an exceptional sequence of nasal fibromata. The fibromata have a remarkable effect in this, that by mere pressure, with and without ulceration, they effect the absorption, without purulency or expulsion or sequestration of dead particles of bones adjacent to the nasal cavity. I have known the osseous palate underneath the tumour to be as soft and movable as the soft palate itself; I have seen it pressed down low into the mouth, and pulsate synchronously with the tumour in the nose. In such cases quick relief is required to prevent perforation with all its attendant evils. When the tumour is removed, the bone is again rather quickly restored; the thin bones, such as the papyraceous laminæ of the orbits are not restored, but supplanted by imperfect membranes. Sometimes all molar teeth are lost on the most affected side.

The pernicious fibroma effects a highly vascular adhesion to all parts of the mucous membrane with which it comes in contact. This adhesion becomes universal over its surface in contact, and results in the formation of a vascular layer, which is the source of all the fearful hemorrhages as well during the progress of the disease as during any operation for its removal. The substance or body of the fibroma is remarkably free from bloodvessels of any kind. The mere touching of the adhesions with a blunt probe for the purpose of ascertaining the extent or firmness of the adhesion not rarely causes a rush of blood, for which it is difficult to suppose the lesion adequate. These hemorrhages are the principal impediment which the surgeon meets with in his attempt to remove the tumours.

In my operations the electro-cautery is the operative tool by which the tumour is dissected, divided, cut out, and destroyed; at the same time, the bleeding is either prevented or arrested by the cautious injection into the bleeding adhesions of a concentrated solution of ferric chloride. The electro-cautery is employed in two forms—one the fork-burner, which cuts into the parts like the sharpest chisel; the other the electro-caustic loop, used white hot, as an écraseur. The styptic is injected with a small syringe, armed with a long hollow platinum needle, the point of which is guarded, so that it can penetrate only to a measured depth. My patients are ordinarily not placed under any general anæsthetic, but, solaced with cocaine, give an intelligent aid to the operator;

but where desirable a general anæsthetic is easily applicable. There is no tracheotomy, no plugging of the larynx, no splitting of the soft or hard palate, no dividing of the nose, no breaking of the nasal bones, no resection of the nasal ramus of the upper maxillary. Almost the entire operation is performed through the nose, whatever may be diagnosed or introduced through the mouth. Consequently, this new operation makes the patients absolutely free from the fearful risks to which, as the statistics of results show, the former intrepid operation would make them liable.

[Dr. Thudichum concludes his paper with the narratives of six cases in which the method of treatment described was followed with complete success].—*Lancet, Jan.* 31, 1891, *p.* 246.

48.—ON RHINOPLASTY.—AN IMPROVED OPERATION.

By Surgeon-Major D. F. Keegan, M.D.Dubl., Residency Surgeon, Indore, Central India.

In Europe, in the majority of cases, rhinoplasty is performed in order to repair the ravages and disfigurement caused by lupus or tertiary syphilis, and it is but seldom that plastic surgery is called upon to make good the damage done to a nose by accident or mutilation. In India, on the other hand, in the vast majority of cases, rhinoplasty is performed to hide the ghastly disfigurement caused by mutilation, and our patients are almost invariably young, healthy, and robust. During my service in India I think I must have performed between forty and fifty rhinoplastic operations, and in every single case they were undertaken to repair the damage inflicted by mutilation. It will be conceded by most surgeons who have had considerable experience in rhinoplasty that the Indian method of operation possesses many advantages over both the Taliacotian and the French plans of procedure. The French method I need hardly say consists in fashioning a new nose by means of flaps taken from the cheeks. The Indian operation, as described and figured in English surgical text-books, is, however, susceptible of much improvement, and it is with the object of bringing this improvement to the notice of the profession in India and in this country through the medium of The Lancet that I write this short paper. The operation which I have performed of late years as the outcome of considerable experience of rhinoplasty is, however, only applicable in its fullest extent to those cases of loss of nose in which the skin and tissues which clothe the nasal bones have been left undamaged. All surgeons who have had much experience in making new noses are, I think, agreed, that the principal difficulties and drawbacks of the operation centre in the formation of the columna, and in obviating the continued tendency to contraction in the anterior nares of the newly fashioned nose, a tendency

which continues for several months after operation. The flap which I raise from the forehead differs considerably in outline from that which we see generally figured in English surgical text-books, and although German surgeons have to some extent adopted the same method of obviating the contraction of the anterior nares as we have pursued for some years at Indore, still I feel I need not offer any apology for bringing the subject to the notice of my English readers. This method of forming new noses has been worked out independently by my assistant, Mr. Gunput Singh, and myself, but we disclaim for it any title to originality, for he would be bold indeed who would assert that he had devised a perfectly new operation in the changeful field of plastic surgery. Annexed is an outline of the flap which I take from the forehead. It will be remarked that it differs considerably from that which we see generally figured in English surgical text-books. Nevertheless, it is the shape of flap which the surgeon should raise from

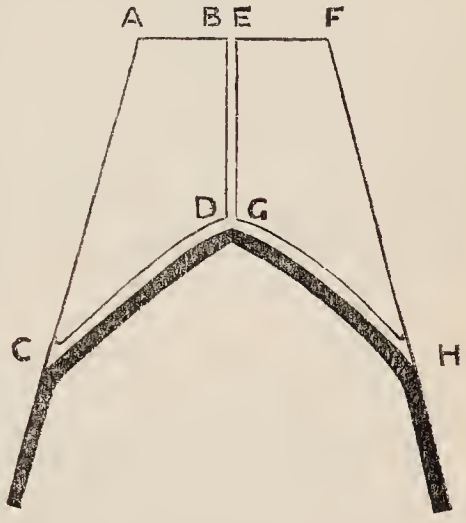
the forehead when he has to deal with a case of lost nose, in which the entire cartilage, both alæ and the columna, have disappeared. The size or superficial area of the flap, as distinguished

from its shape or outline, will, of course, depend a good deal upon the make or cast of face of the patient with whom we have to deal. If the patient's nose was originally a long one, then the forehead flap must be cut proportionally longer. That the annexed outline indicates the shape of flap which should be aimed at I have proved again and again to demonstration by mapping the outline of several noses cut off from subjects in the dissecting room. Should portions of the patient's alæ nasi and columna be left intact, then, of course, the shape of the forehead flap must be modified to suit the requirements of the case. The root or pedicle of the forehead flap should occupy the internal angle of the eye, and care should be taken that the angular artery which supplies the root be not wounded. The forehead flap should be mapped out obliquely, and not perpendicularly, to a line connecting the eyebrows. In Eastern women, who frequently have low foreheads, I have often been obliged to encroach on the scalp to provide for the columna; and, although under such circumstances hair grows on the newly formed columna, still I think that this is preferable to deforming the mouth by taking the columna from the upper lip, as the hair can be kept clipped with scissors.

Now I must describe the steps of the operation, and I shall endeavour to make as clear as I possibly can, without the aid of a coloured drawing, the device for obviating the contractile tendency of the anterior nares of the newly formed nose. I generally allow a fortnight or three weeks to elapse after the mutilation before attempting to restore a new nose. The patient having been fully anæsthetised, the cavities on both sides of the septum nasi are plugged with pledgets of cotton-wool, to which strings or sutures are attached. We will suppose that we have to deal with a case in which both alæ nasi, the entire cartilage, and the columna have been cut away. The operation is begun by carrying two converging incisions from two points slightly external to the roots of the alæ nasi to two points about three-quarters of an inch apart on the bridge of the nose, where a pair of spectacles would rest. These two points on the bridge of the nose are now joined by a horizontal incision. This horizontal incision is bisected, and a perpendicular incision is drawn downwards from the point of bisection nearly as far as where the nasal bones join on to the cartilage of the nose. In other words, this perpendicular incision follows the course of the junction of the nasal bones, but is not carried down as far as their inferior borders. The skin and tissues are now dissected cautiously from off the nasal bones from above downwards in two flaps, A B C D, and E F G H, as in the diagram.

The two inferior borders of the flaps— viz., C D and G H—are not interfered with, and constitute the attachment of the flaps to the structures and tissues which clothe the inferior borders of the nasal bones, where they join on to the cartilage of the nose. If

these two flaps are reflected downwards, so that their raw surfaces look forwards and their cuticular surfaces look backwards, it will be found that they overlap in the centre. The surgeon has therefore a redundancy of flap to deal with, a redundancy which he can utilise a little later on when he has raised the flap from the forehead. He now proceeds to do so in the usual way. A piece of stout brown paper rendered adhesive and corresponding in outline with the flap, considered suitable to the case in hand, is stuck firmly on to the forehead in a slanting direction. And then a very sharp knife is run round the border of the paper. The paper is now removed, and the flap is quickly raised from the forehead. This flap should embrace all the tissues down to the periosteum, and should be subjected to as little handling as possible. The sides of the gap now left in the forehead are approximated as quickly as possible by means of horsehair sutures, and it is surprising how small a raw surface is left behind on the forehead if the approximation of the sides of the gap be judiciously and expeditiously carried out. Attention is now directed to preparing a nidus or bed for the reception of the columna, and this does not require any description. The two flaps, A B C D and E F G H, which have been already raised from off the nasal bones, are now reflected downwards, and, as they overlap in the centre, two triangular-shaped pieces are cut away, and placed in the middle of the gap left in the forehead, in order to expedite the process of cicatrisation in the frontal scar. The forehead flap is now brought down over the nasal bones, and rests inferiorly on the two reflected flaps, A B C D and E F G H, taken from off the nasal bones. The raw surface of the frontal flap, inferiorly, lies on the raw surfaces of the two reflected nasal flaps, and the nostrils of the newly formed nose are therefore lined inside with the skin or cuticular sides of the reflected nasal flaps. The free inferior margins of the forehead flap and the nasal flaps are now brought together by horsehair sutures. The columnar portion of the forehead flap is now fixed in the bed prepared for it by sutures, and the two original incisions drawn from the root of the alæ nasi on either side to the bridge of the nose are now deepened and bevelled off for the reception of the sides or lateral margins of the forehead flap. The sides or lateral margins of the forehead flap are most accurately attached by means of horsehair sutures to the bed prepared for them. Two pieces of drainage-tubing are



inserted in the newly formed nostrils. Strips of lint on which some boracic ointment has been smeared are placed over the junction of the lateral margins of the new nose to the cheeks, and also on the gap left behind on the forehead, and cotton-wool is applied over all. If the root or pedicle of the new nose is sufficiently broad, and is not dragged upon and the angular artery has not been wounded, then all will go well, and there need be no fear of sloughing. Indeed, it will be generally found that, if due antiseptic precautions have been taken during the operation, the new nose will have adhered in a very large extent by first intention. I allow a fortnight to elapse before dividing the root or pedicle of the new nose, and in doing so I cut a wedge-shaped slice out of the root so that the new nose may not be parrot shaped. As the inside of the nostrils are clothed with skin, the drainage-tubes may be discarded after ten days, for if the operation has been properly performed there can be no contraction of the nostrils. I know how extremely difficult it is to make the steps of a plastic surgical operation perfectly clear and intelligible without the aid of coloured plates; but if the reader will bear in mind that the object of raising the flaps from off the nasal bones is to clothe the newly formed nostrils with skin, and so counteract their tendency to contraction, which is one of the great drawbacks to success in rhinoplasty, he will, I think, be able to follow the steps of the operation.—*Lancet*, *Feb.* 21, 1891, *p.* 419.

ALIMENTARY CANAL.

49.—ON RECTANGULAR OPERATION FOR HARE-LIP.

By C. H. Golding-Bird, F.R.C.S., Senior Assistant-Surgeon to Guy's Hospital, London.

This communication deals only with the method of closing the cleft in the lip. The objects to be attained by operation are union of the two sides of the cleft lip; maintenance of the new lip in a horizontal line, and in a manner that shall not only at the operation appear satisfactory, but stand the test of subsequent cicatricial contraction after many weeks; perfect adaptation of the red and white of the lip on each side, and the avoidance of any mucous membrane appearing in the vertical scar; and, finally, the restoration of the depth of the shallow side of the lip, with elevation of the flattened nostril.

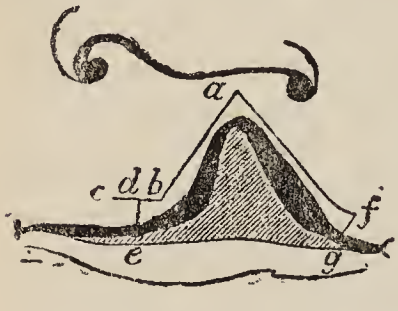
In all recognised operations for hare-lip, one or more of these conditions is undoubtedly fulfilled; but an experience of just on fifty cases convinces me that rules may be laid down whereby every one of these conditions may be fulfilled by one and the same operation. The operative procedure now advocated com-

bines the various steps that have individually been practised by different operators; yet the steps for the restoration of depth to the shallow side, and the character of the flap, give it a novelty and a justification for its having a special designation, and I have long called it "the rectangular operation."

Much attention is always given to economising tissue, so as to close the cleft, and, I think, insufficient to giving depth to the lip; the former need never give anxiety, it can always be effected, but the latter is more difficult to accomplish. It has been attempted by giving a curved shape to the incisions, or, as in Giraldés's operation, by a horizontal cut close to the nose; but these plans will not stand the test of subsequent cicatricial contraction, and nothing but the addition of tissue to the shallow side can give it permanent depth and prevent subsequent notching; and the various flap operations are more or less effectual in this direction. Yet, with the idea of preserving as much as possible, one sees a paring taken from the horizontal part of the deep side of the lip and a flap obtained from the vertical paring of the shallow side, whereby it is true the shallow side is not rendered shallower, but its depth is not increased. I cannot endorse the experience of a late surgeon (Mason) who wrote to the effect that deficiency of tissue was not the rule; the cleft, and cleft only, was the anxiety; for my own experience has shown me that one side of the cleft—that is, that to which the cleft belongs, or, in other words, not that of the prolabium—is almost always ill developed.

To ensure a successful result, the surgeon should observe the position on the edge of the upper lip where it begins to recede from the lower when the lips are together; this rarely corresponds with the edges of the cleft. Then the shape of the cleft must be noted—that is, the inclination of its margins and whether they are equally inclined; whether one is shallower and more receding than the other; and whether the angle at the nose is acute or obtuse. A classification, as a guide to operation, may be based on these observations on single hare-lip. Thus: Symmetrical hare-lip, where the sides of the cleft are equal in length and inclination, but the angle at the nose may be acute or obtuse; unsymmetrical hare-lip, where the sides of the cleft are unequal in length and inclination, and the shallower side is almost always, as stated above, on the outside of the notch. The symmetrical variety with acute angle above, which is rare, can be well treated by Malgaigne's operation; the unsymmetrical and the obtuse angled symmetrical are best treated by the rectangular method. In operating, the mucous membrane of the lip, along its whole length, at the alveolus (and not the frænum merely) must be divided in every case, and then the soft parts rapidly detached from the bones of the face, even as far up as the infra-orbital foramen if

necessary, the depressed ala of the nose being thoroughly detached from the bone. Thus the soft parts are made to slide easily over the bone, and the widest cleft can thus be closed. Then perforate the lip on its deeper side (prolabium side generally) as near the nostril as possible, and just external to the red margin, and incise downwards through the entire lip-thickness till the lower angle is reached (*a*, *b*); and then the knife is turned to cut horizontally till it arrives over that part of the upper lip which rests on the lower lip when the mouth is closed (*b*, *c*). The distance of this part of the incision from the red margin must be determined by the amount that will be required to deepen the shallow side opposite. By a vertical cut, starting about three-sixteenths of an inch from the end of this incision, the paring is detached and a square solid flap is made (*d*, *e*). A precisely similar incision (*a*, *f*) is now made on the opposite or shallow side, keeping just within the white of the lip; but at its termination over the horizontal part of the lip, it is made at such a distance from the red margin that it shall correspond to the thickness of the flap. It terminates by a vertical cut (*f*, *g*), as on the other side, only it starts from the extremity of the incision.



It is surprising at times how much of the margin of the shallow side has to be cut away before the horizontal level is reached. Thus a rectangular notch results, into which the square flap fits, and the thicker the flap the more can the depth of the shallow side be increased.

In Mirault's flap, the fact that it is wedge-shaped—that is, tapering—I have found disadvantageous, the liability of the tip to wither and not unite being great. It does not offer also the same facilities for obtaining exact correspondence between the red and white margins as the rectangular flap.

The union of the vivified parts is mainly by means of wire sutures, the highest one passing close under the ala of the nose that it may, when twisted up, raise the depression on that side, even at the risk of temporarily closing the nostril. The lowest of the wire sutures adapts the white part of the flap; the red part and the mucous membrane on the under side being carefully united with interrupted sutures of very fine silk.

These mucous membrane sutures I regard as a feature of the operation, preventing the entrance of liquid food into the wound, or even its separation by the child's tongue. The resulting scar, much as in Mirault's and Giraldés's methods, is ⌊-shaped: thus, subsequent tendency to shortening by contraction of the vertical scar is counterbalanced by that of the horizontal part.

The dressing that has succeeded best in my hands is a long strip of antiseptic gauze, applied as a Louis's bandage, and saturated where it crosses the upper lip with a mixture of iodoform and collodion.

In double hare-lip, where the prolabium has to be utilised as a column for the nose, the case resolves itself into one of single hare-lip with a very wide cleft; but where the prolabium can be utilised in the lip, it is pared on its three sides (all the red part being removed) and inserted between the opposed sides of the cleft; its lower border being united to the upper surface of the flap as this latter passes beneath it to reach the notch prepared for it on the opposite side of the lip.

Out of forty-seven consecutive cases of which I have kept notes, I have had thirty-nine cases of single hare-lip. Of these, eighteen were treated by various recognised methods, with three failures, and these three were operated upon by Malgaigne's method; in two others the result was not recorded, though I have no reason to believe they failed. In the remaining twenty-one cases the rectangular operation was done without a failure.

Of eight cases of double hare-lip, seven were operated upon by the rectangular method and one by Mirault's, and all were successful; but in one, though the lip was perfect, the prolabium failed to unite to the septum, where it was being used to form a column for the nose, and so required subsequent operation.—*British Medical Journal, Oct.* 25, 1890, *p.* 952.

50.—ON A METHOD OF CLOSING CLEFT OF THE HARD PALATE BY OPERATION.

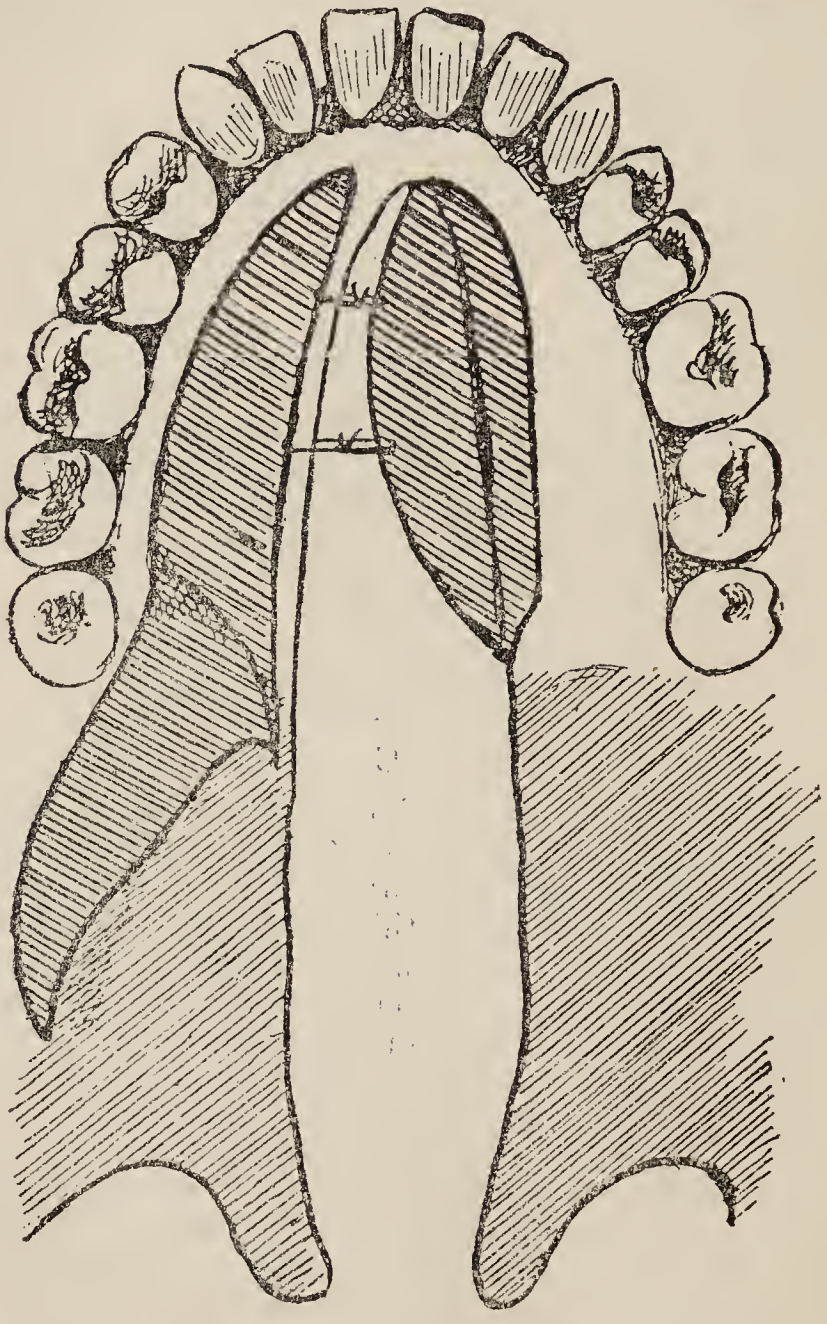
By J. N. C. Davies-Colley, F.R.C.S., Surgeon to Guy's Hospital.

I propose in this paper to describe a method of operating upon cleft of the hard palate, which was devised by me for the treatment of a difficult case that was under my care more than eleven years ago. I have operated by this method on several occasions since, and in nearly every case I have succeeded in firmly uniting the sides of the hard palate. I do not bring forward this operation as at all superior in most cases to the ordinary method of closing clefts of the hard and soft palate. There are some disadvantages in it which will prevent its universal application, but in certain classes of cases, which I will afterwards define, I consider that this method of operating presents very considerable advantages.

The operation may be divided into four stages. The patient being under chloroform, the mouth should be held open by a suitable gag (Smith's or Gowan's), and the head allowed to hang downwards over the end of the operating table.

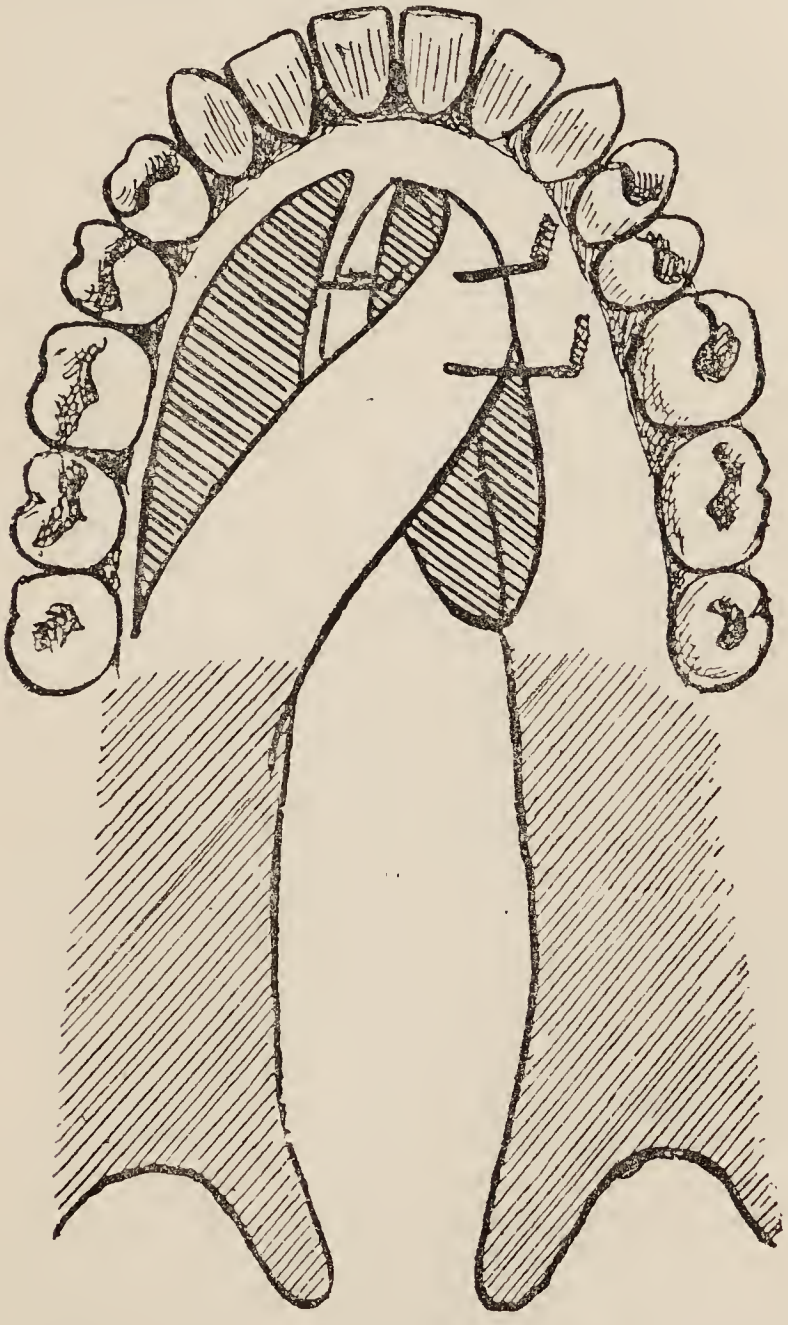
Stage 1.—A triangular flap consisting of the whole of the soft parts covering the bone should be cut from that side of the hard palate which is the wider; or if, as usually happens, the septum of

the nose is attached to the palatal process of one of the superior maxillæ, the flap should be taken from this side. The apex of this flap should reach nearly as far forwards as the insertion of the incisor teeth. The outer border of the flap should begin just internal to the back part of the alveolar process, and should run forwards parallel to the margin of that process. The inner side of the flap* should run backwards one-eighth of an inch external



* In some cases in which the cleft is wide and the vomer is attached to the margin of the palatal process of the superior maxilla, it may be desirable to extend the inner edge of the triangular flap for a short distance up the nasal septum, so that the muco-periosteum of the septum may be made use of to increase the size of the flap.

to the margin of the cleft, and should terminate a short distance behind the posterior border of the hard palate. The base which is left attached will therefore extend from close to the inner border of the alveolus for the last molar teeth, inwards and slightly backwards to the edge of the cleft of the soft palate, near to its anterior attachment. The hemorrhage which occurs in stripping back this triangular flap by means of the knife and raspatory is easily controlled by pressure of a small sponge on a handle.



Stage 2.—An incision is made down to the bone upon the other side of the cleft, at least one-sixth of an inch external to its margin. The greater part of the incision runs from before backwards parallel to the cleft. It should begin at the level of the

anterior extremity of the cleft, and should end at the back of the hard palate. At its anterior and posterior extremities this incision should be carried inwards to the margin of the cleft. A raspatory is now inserted, and by it the muco-periosteum internal to the incision is separated from the bone as far inwards as the margin of the cleft. The hemorrhage during this step, which is trifling, may be easily arrested by sponge pressure.

Stage 3.—The flap made in the last stage of the operation is now turned inwards upon the hinge, so to speak, formed by its attachment to the margin of the palatal processes of the superior maxilla and palate bone, and is fixed in this position so as partly to bridge across the cleft by two moderately fine catgut sutures passed through its edge and the thin strip of mucous membrane which was left *in situ* on the opposite side of the cleft, internal to the triangular flap (*vide* Fig.).

Stage 4.—The apex of the triangular flap is now carried across the cleft, and the anterior part of its inner margin is attached by means of two or three silver sutures to the outer border of the incision upon the other side of the palate. In passing these sutures the ordinary palate needle, with its bend in a plane perpendicular to the handle, is employed, and it is better, at any rate in the last stage, to pass a silken suture first before drawing the wire through. If there is any difficulty in carrying the triangular flap across the cleft, it may be necessary to detach its base more freely from the soft parts which connect it with the back of the hard palate. It will usually be found that the triangular flap lies very loosely in its new position, but no fear need be entertained that on this account it will fail to unite. The upward pressure of the tongue will constantly maintain the raw surface, which forms the upper portion of the flap, in close contact with the raw surface, which, if Stage 3 has been properly carried out, is directed downwards so as to form a bed for its reception.

The subsequent treatment of the case is in no wise different from that after the ordinary operation. The gut sutures inserted in Stage 3 are left to themselves, and cause no further trouble. The wire sutures will be found still in their places at the end of five or six weeks, when they may be removed. The advantages of this method of operating are:—

1. There is less hemorrhage, for on the one side of the palate very few vessels are wounded, while on the other side the incision does not extend as far back as the foramen for the large descending palatine artery; and in dissecting back the triangular flap, it should be remembered that all the vessels which are divided are exposed to view, so that their orifices can be readily compressed by the sponge. In only one case have I noticed recurrent or secondary hemorrhage, and in that case the bleeding was easily controlled by pressure, and caused no further trouble.

2. The parts can be cleanly dissected without so much bruising as is necessary in the ordinary operation.

3. Nothing is cut away.

4. There is very little tension after the operation. The flap lies loosely in its position, so loosely that I have often had misgivings that it would not unite; as there is no pull upon the sutures, they do not ulcerate through, and may be left for five or six weeks after operation. This gives opportunity for the flap to unite by granulations if union by first intention has failed.

5. I have never observed any tendency to sloughing in the flap.

6. The upper pressure of the tongue, which so often causes separation of the flaps when the ordinary operation has been performed, especially in young children, is here beneficial. When the mouth is closed it acts as a splint to keep the flap in its proper position, and press it firmly against the raw surface upon the other side.

7. The bridge is a very strong one, consisting as it does of two layers of muco-periosteum united by their raw surfaces.

8. This operation can be performed with success at a much earlier period than the ordinary operation. It is easy by these means to firmly unite clefts of the hard palate in infants between the age of one and two years. This is a great advantage, not only with respect to the mastication of food and the learning to talk, but also in diminishing the deformity of the face, the broadening of the bridge of the nose and the separation of the cheek bones, which are so often noticed in these patients.

The disadvantages of this method are: (1) the hard palate alone is united; (2) a foramen is generally left at the front part of the cleft. This either tends to disappear, or can be closed in later life.

I have endeavoured to unite the sides of the soft palate at the same time, but without success. On the other hand, it should be remembered that by securing a firm union of this kind in early life between the palatal processes of the superior maxillæ and palate bone the sides of the cleft in the soft palate are approximated, and that they may be easily united a few months later. I must confess, however, that in the young children upon whom I have operated I have found considerable difficulty in subsequently uniting the front part of the cleft of the soft palate, while the posterior two-thirds or three-fourths are readily brought together. In two patients over the age of 12 I have found no difficulty in closing the gap thus left.

In conclusion, I would strongly recommend this operation for the consideration of surgeons in the following cases: 1. In the cleft palate of infants. 2. In patients on whom the ordinary operation for cleft of the hard palate has failed. 3. Where the separation of the sides of the hard palate is too great to be bridged over by the ordinary operation.

I would append, however, one word of warning to those who

wish to operate by this method. Take care that the incision made in the second stage of the operation be far enough from the edge of the palate to permit of a wide raw surface being formed by the denuded bone and the inverted flap; for otherwise, as happened in one of my own cases, the triangular flap will unite well with the tissues of the opposite side, but, as it has no broad raw surface with which to unite, its edges will afterwards curl in, and the bridge formed will be too narrow.—*British Medical Journal, Oct.* 25, 1890, *p.* 951.

51.—ON THE OPERATION OF ILEOSTOMY FOR ORGANIC DISEASE OF THE CÆCUM CAUSING OBSTRUCTION.

By Thomas Bryant, President of the Royal College of Surgeons; Consulting Surgeon to Guy's Hospital.

The operation of enterostomy as first performed by Nélaton, and strongly advocated by Trousseau, has never found much favour with British surgeons, and at the present day, when a general experience tells us that we may deal as boldly with the peritoneum and the viscera it encloses as with any other portion of the human frame, it is never likely to become common, since at its best it can rarely be more than a temporising measure, and only indirectly a curative one. That it may be the means of relieving some of the most urgent and distressing symptoms of obstruction as well as of prolonging life is not to be disputed, and that by so doing it may give nature an additional chance of removing the cause of the obstruction is equally clear; but it can do nothing in a direct way towards restoring the continuity of the intestinal tract when mechanically closed. Nevertheless, the principle of the operation is good, and the measure itself, even as it has been practised, has a distinct place in surgery, and must be regarded as a valuable addition to the surgeon's means of giving relief, when applied to the right class of cases and carefully performed. As an operative measure it has, however, a weak point, and that is the uncertainty which the surgeon always feels as to the anatomical position of the coil of distended intestine which he may have opened, for Nélaton's directions were to open the coil of bowel which presented at the wound which was made in the right iliac fossa. If the coil which presented happened to be low down in the ileum, all might be well; but if it happened to be a coil of jejunum, failure must soon follow, for the patient would die of inanition. It follows, therefore, that some method is wanted by which the surgeon can be guided towards the lower part of the ileum; and as in the following case I think I have discovered a way by which this desirable end may generally be secured, I have taken the present opportunity of bringing it before my professional brethren. The operation I am about to describe may well be called "ileostomy."

On Nov. 25th I was asked by Dr. Knaggs of Camden-road to see with him a lady aged sixty-two, who had been healthy up to last May, when "she had a severe attack of flatulent dyspepsia, followed by diarrhœa. By careful dieting and the frequent use of starch and opium enemata the diarrhœa subsided, and she became sufficiently well to get about again. At that time there were no signs of any tumour or of any abnormality of the abdomen. A month afterwards, on Oct. 20th, the diarrhœa again returned and a swelling made its appearance in the right iliac fossa; this gradually increased in size, but subsequently appeared to vary according to the state of the bowels—that is, after relaxation the tumour became smaller, and after a starch and opium enema it increased. The abdomen generally was distended."

On Nov. 25th I found a spare woman of fair power with a distended and tympanitic abdomen, the enlargement being very central and below the umbilicus. The loins and epigastric region were comparatively flat. Coils of small intestine were very visible through the thin abdominal parietes, and peristalsis was very visible. In the right iliac fossa there was an irregular swelling with ridge-like projections upon its anterior surface; firm pressure upon this caused pain, but made no impression upon the outline of the swelling. I regarded this swelling as being due to tumour, which I feared was of a carcinomatous nature.

On Dec. 1st I performed the operation. The operation wound went on well, and within three weeks the artificial anus was fairly established, and the motion which escaped from the wound was healthy and semi-solid. The patient herself improved in spite of her bladder trouble, which was a source of distress. The abdominal swelling and pain also disappeared, and the prognosis of the case may be said to be favourable.

The object I had in view was to open the ileum just above the ileo-cæcal valve; for the working diagnosis made of the case was that of carcinoma of the cæcum. The operation determined upon was therefore on the lines of a lumbar colotomy for rectal stricture —that is, it had for its object the formation of an artificial anus above the seat of the intestinal obstruction. With this view I made my incision in the right semilunar line, its centre corresponding with a horizontal line drawn across the abdomen from one anterior superior spinous process of the ileum to the other, and the incision made was about one and a half to two inches in length. Through this incision, when all bleeding had been arrested, I passed my index finger, and pushing aside a coil of distended small intestine, and coming down upon the inner border of the cæcum I at once hooked up the ileum and brought it to the surface. It is to be noted that the coil of small intestine which first presented itself was not the coil which was wanted. The bowel was very thick, and felt like a stomach. It had evidently, from over-work, become

much hypertrophied. The bowel was then sutured to the parietal peritoneum by six fine chromicised catgut sutures, three on each side, and care was observed not to pass the sutures deeper than the muscular layer of the intestine. Where the wound tailed off at either end, a suture was passed through both edges of the divided parietal peritoneum, as well as through the muscular walls of the bowel itself. The outside wound was then brought together at both ends by a few sutures introduced through the skin and muscles of the opening. The bowel was not opened at the time of operation, but two guiding loops of silk were passed through the serous and muscular coats of the bowel, to indicate to the surgeon the exact position at which, later on, the opening into the bowel should be made. And let me add that without this aid great difficulty would have been experienced, and consequently danger, in completing the operation; for on the third day the whole surface of the wound when exposed was covered with granulations, and there would have been no guide whatever to indicate the point at which the puncture could, with safety, be made, whereas with the guide the completion of the operation was effected with certainty and precision. In an urgent case the bowel would have to be opened at once; the opening, however, need not be a large one, and Nélaton's directions to make it about a quarter of an inch long should be followed. At a later period the opening can easily be enlarged and without pain, the bowel having no sensitive nerves. In my own case I made the opening about half an inch long. For the first three days after the first stage of the operation was completed the patient's powers were kept going by means of small nutrient enemata alternating with nutrient suppositories, administered every three hours, and a teaspoonful of brandy and water by the mouth every half-hour. A belladonna and opium suppository was given after the operation. After the bowel was opened and relief was afforded to the obstructed intestine, food was ordered by the mouth, and was well retained. The patient is now, nearly five weeks after the operation, convalescent, and her general condition has much improved. The bowel empties itself without pain through the artificial anus as well as through the normal channel. This operation which I have just described, and which for purposes of clearness may be called "ileostomy," is as applicable to examples of chronic obstruction of the cæcum from organic disease as is left lumbar colotomy for chronic obstruction of the rectum. It is, moreover, applicable to cases of acute or chronic ileo-cæcal intussusception in which, from some cause or other, the opportunity for opening the abdomen has been lost, or the time for doing it has passed, and in which relief to symptoms is urgently called for. It will also, in practice, be doubtless found to be applicable to other cases when no other means of giving relief can be suggested. Should the lower end of the ileum in any

given instance be found not to be the right coil to be opened, the most distended one which presents, as advised by Nélaton, may be taken as a substitute, and the operation turned into one of Nélaton's enterotomy cases. The operation is not a difficult one, and in extreme cases, where an anæsthetic is likely to be dangerous, it might be done even without its aid. If the surgeon follows the method I have just described in this paper, he will, I am convinced, be as pleased with the operation as I was; and if he gives his patient the relief my operation of ileostomy has given mine, he will not be unwilling to repeat the measure in an appropriate case. —*Lancet, Jan.* 3, 1891, *p.* 1.

52.—ON THE TREATMENT OF INTERNAL INTESTINAL STRANGULATION AND OBSTRUCTION.

By Thomas Bryant, F.R.C.S., President Royal Coll. of Surgeons.

In the case of a patient suffering with symptoms of strangulated bowel—that is, a sudden abdominal pain, accompanied or soon followed by vomiting of a gushing and persistent character,—if this patient be the subject of an old hernia, the rule of surgical practice is to explore the hernia, whether or not it presents the local features of strangulation. Should nothing be found in the hernial swelling to explain symptoms, the surgeon then explores the neck of the hernial sac, and on this exploration yielding no result, he is often and should always be led to explore the abdominal cavity.

In the case of a patient suffering with symptoms of strangulated bowel, but without any external hernia, I hold that a like rule of practice should be followed; and that on the diagnosis of a bowel strangulation being made, the surgeon should at once proceed to explore the abdomen, first, to find out the exact cause of the strangulation, and, secondly, to relieve it. It is true that failure often follows the attempt, but it is equally true that success is more likely to attend an early effort than it can be expected to follow a late one; and under all circumstances it should be remembered that where success ensues, it means that a life has been saved which under other circumstances would to a certainty have been lost. I would, however, like to remind you that as in practice we meet with cases of irreducible hernia in a condition of obstruction as well as of strangulation, and that these conditions are indicated by general symptoms which vary only in degree of intensity, so we must expect to meet with cases of internal hernia or their equivalents under precisely similar circumstances, and that these different conditions will be indicated by different symptoms. Indeed, it is important to remember that an internal hernia, like an external one, may be either obstructed or strangulated. I would point out also that even in cases of external and

internal strangulation there are degrees of strangulation. In one case it may be so sudden and complete as in a few hours to bring about blood stasis in the portion of bowel which is implicated; whereas in another the strangulation is more slowly brought about, and two or three or more days may be passed before the strangulated intestine undergoes any serious organic changes. Between these two extremes there are also many degrees.

With a due recognition of these facts, we can therefore fully understand how it is that in practice symptoms of bowel obstruction and of strangulation, whether within the abdomen or within an external hernia, are found to vary. We comprehend how it is that in the most acute cases, besides the sudden onset of the symptoms, accompanied with vomiting of a persistent and gushing character, we meet with early collapse and speedy death; and how it is where the process of strangulation is less complete and more gradual, the general symptoms are less severe, the vomiting less marked and persistent, and the collapse more or less absent until the close of the case. I have known a case of scrotal hernia of the congenital variety, in a young man aged twenty-six, terminate in gangrene of the whole strangulated bowel in twenty-four hours, and I have known a coil of bowel in a young woman about the same age, which had become strangulated by a peritoneal band clipping the coil at the brim of the pelvis, become gangrenous in the same period, in both these cases operative interference having proved futile because undertaken too late, relatively to the amount of changes which had taken place in the strangulated tissues. A portion of bowel acutely strangulated within the abdomen is no more likely to relieve itself by natural processes than is a strangulated coil in an external hernia, and although we know that in very exceptional cases such a happy result may take place, no thoughtful surgeon would on that account delay surgical assistance in the one case more than in the other; whereas a loop of bowel, when only nipped by a band or partially strangulated, like an obstructed hernia passing on to strangulation, may suffer but little from some hours' delay, or may even find an escape by natural processes when well aided by art.

In the most severe example of acute strangulated hernia even the taxis may be injurious, and nothing but operative interference can be considered to be good surgery. In the more slowly developing examples the taxis is the right treatment, opium and local cold may be justifiable measures, and operative delay not open to censure. By a like argument, in an acute internal strangulation nothing but laparotomy ought to be entertained; whereas in the more slowly developing cases a few hours may be spent in verifying diagnosis and in the employment of measures which may tend towards good. Laparotomy should therefore always be undertaken as soon as the diagnosis of acute intestinal strangulation is made,

and there need be no delay for the formation of a specific diagnosis of its cause. In the less severe cases, where the symptoms are those of obstruction, and where the diagnosis may not be clear, the lapse of a few hours may be justifiable. The treatment of these cases during the period of delay will be considered under our third heading.

The *second group* of cases, or that which includes examples of chronic obstruction of the rectum or colon from cancerous, syphilitic, tubercular or simple ulceration, need not detain us long. Practitioners who are in the habit of making rectal examinations in all patients who complain of bowel troubles soon recognise these chronic affections; and if the histories of the cases which present symptoms of an acute nature are carefully gone into, the difficulties of diagnosis are not as a rule insuperable. The digital discovery of growth or ulceration when the disease is low down, and the ballooning of the rectum when it is higher up, afford with the history of the case and other symptoms ample evidence upon which a working diagnosis can be made in the majority of cases; and when the diagnosis has been made, the line of treatment to be followed is neither uncertain nor complicated, since it can be summed up in the use of laxatives to ward off symptoms of obstruction, and a well regulated diet, with colotomy (lumbar if possible) as soon at least as the first symptoms of impending blockage appear; and in time to anticipate those further changes in the bowel above the seat of obstruction upon which the mortality of all cases of obstruction, as well as so many of colotomy, so much depends. When acute symptoms have been grafted upon the chronic, some difficulties in diagnosis may be experienced; but such cases rarely if ever simulate those of internal strangulation, and under such circumstances some delay for purposes of investigation can generally be sanctioned, as long as a line of expectant treatment such as I am now about to consider, and which is not calculated to do harm, is steadily pursued.

The *third group* of cases must now occupy our attention, and it includes all cases which cannot be well placed in either of the two former groups, and in which therefore the diagnosis of the cause is in a manner obscure. It includes also for treatment certain examples of the two former groups. The group comprises, therefore, for purposes of treatment, examples of the first group in which operative delay is justifiable from doubtful diagnosis, or necessary from want of consent or other cause; cases of the second group in which acute symptoms have been grafted on to the chronic; cases of fæcal impaction of the cæcum or colon (I exclude rectum as this condition is so readily detected); cases due to some local peritonitis, the result of injury, or the extension of inflammation from a pelvic or other organ; also cases of chronic intussusception or of early stricture; cases in which the diagnosis

of internal strangulation is not sufficiently clear, or of colonic obstruction from stricture sufficiently evident, and yet in which symptoms of obstruction are markedly present—that is to say, abdominal pain exists in various degrees, and more or less abdominal tenderness and distension. Peristalsis may or may not be visible—if very visible it suggests chronicity. Vomiting may be present or persistent, and this is aggravated by food. Constipation, more or less complete or prolonged, may coexist, and a repeated examination of the rectum fails to give any evidence of local disease. How is such a case to be treated? Are purgatives of steadily increasing power to be regularly administered? Are enemata of gradually increasing quantities and strength to be consecutively employed? Is our old friend the long tube to be called into requisition, and are we still to delude ourselves that by means of it the sigmoid flexure may be washed out? Is the patient, when under an anæsthetic to be inverted, succussed, and his abdomen manipulated by abdominal taxis for thirty or forty-five minutes with the hope that some good may come from it? For my own part, I say away with all these measures as a routine practice. In some few cases they may be applicable, but in most they are surely full of grave danger. When the diagnosis of the case is that of colonic obstruction from fæcal impaction, purgatives and enemata may possibly be right in the minds of some; I am disposed to think otherwise. Where the obstruction is probably due to organic stricture, purgatives and enemata are unquestionably wrong.

In most cases of obstruction, and in examples of uncertain strangulation, an enema at the early period of the case to clear out the lower bowel, and to facilitate a rectal examination, is of advantage, but the employment of the long tube is under all circumstances a delusion, a danger, and unnecessary; for when the surgeon wishes to wash out the colon or to fill it, this is best done by using the enema syringe or a long rubber tube and funnel, with the pelvis of the patient well raised on a high pillow, in order to make the injected fluid pass into the bowel by its own gravity. It is true that when purgatives are given in cases of internal strangulation, as in those of hernia, nature herself expels them by vomiting, and in this way the harm they may do is much diminished. But why give them? Is not the bowel above the seat of obstruction in every case of intestinal strangulation, as well as of obstruction, already goaded enough, and is it not full to overflowing with liquid fæces? Is not also this liquid motion ready to flush the lower bowel as soon as the mechanical cause of obstruction is removed? So far as purgatives and aperients are concerned, they can therefore do nothing but harm. As to abdominal taxis, succussion, and inversion, I am at a loss to know what to say, since these measures have a powerful supporter in the distinguished

surgeon who advocates their use as a routine practice, and who tells us that it is hardly likely to be prejudicial to any case. I shudder, however, to think of the harm these measures are calculated to produce in all cases of internal strangulation, and believe it cannot be less than forcible taxis is known to bring about in the treatment of an external strangulated hernia.

I am, however, sure that, in a modified form, abdominal kneading is in certain cases of value; indeed, I have employed it with success; in the same way as it is useful in cases of large obstructed, but not strangulated, hernia. Thus, in cases of obstructed bowel from some mechanical cause, such as a band, when symptoms are not severe; in cases of fæcal, cæcal, or colonic obstruction; in cases of obstruction due to matting together of the intestine from some antecedent peritoneal inflammation the practice may be of use. In any case of acute trouble in which bowel strangulation is suspected the practice must be full of danger, and should be condemned. In these cases an exploratory abdominal incision is far less likely to do harm, and is far more likely to do good if undertaken in time. Under these circumstances I would wish to replace these unscientific, if not dangerous, routine practices by another, which has some reasonable arguments in its favour, and not the least of which is its success.

The principle upon which it is based was first recommended by Sydenham; it was reintroduced by Brinton, and more recently enforced by Thomas, with some modifications. It may be summed up as follows. The recumbent position with elevation of the pelvis, abstention from all food by the mouth, rectal alimentation, the external use of belladonna and glycerine, and the administration of belladonna and opium to check peristalsis and soothe pain.

The results that followed the treatment in three typical cases were satisfactory, and I am induced to think they were better than any that would have followed the use of powerful purgatives, large enemata, or the abdominal taxis. The treatment, moreover, was simple, and, though expectant, it did no harm. Of such treatment we may reasonably say that it gives time in the only class of cases to which it is applicable—viz., those of a not urgent but doubtful nature—for the case to develop, and the surgeon to frame a more exact diagnosis; whilst it leaves nature every chance of making right, where this is possible, what may have been wrong in the abdominal machinery. Should the symptoms in any given instance fail to be speedily relieved by this treatment, more active measures can be resorted to as soon as a clearer working diagnosis has been made.

In some cases opium may be freely given; but I hold that where belladonna as an external application arrests peristalsis and soothes pain opium is not needed. In many cases it is, however, most valuable; the form I like best is either the solid opium or the

bimeconate of morphia. It should, however, always be given with caution. I prefer to employ it with belladonna as a suppository made with gelatine—half a grain of the extract of belladonna and half a grain or more of solid opium. Warm fomentations to a swollen abdomen often give comfort; when employed they should be placed over the glycerine and belladonna application (ext. belladonna one drachm, glycerine one ounce). In a case of obstructed bowel from a supposed band with mild symptoms I have known relief to follow the elevation of the pelvis on a firm pillow, so as to allow gravity to act towards the thorax; and I believe that with this treatment, combined with starvation and the use of belladonna and opium, I have had cases of natural recovery. I claim no novelty in the treatment I am advocating. I only want to enforce its value, and should indeed be pleased to know that it had superseded the routine practices to which I have drawn attention, and which have far too long occupied the field.—*Lancet, Jan.* 17, 1891, *p.* 128.

53.—ON THE SURGICAL TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.

By J. Greig Smith, F.R.S.E., Surgeon to the Bristol Royal Infirmary; Lecturer on Surgery, Bristol Medical School.

[For the purposes of discussion Dr. Greig Smith states three cases, and then describes what he believes to be the best operation in each. Perhaps Dr. Smith's second case is representative of the largest group of cases of intestinal obstruction, and he speaks of the treatment of this as follows.]

In the second case the patient is still well enough to bear the complete operation, but with certain precautions and additions. In this case the obstruction will probably have existed for a week or more. The patient's strength is waning, and he is no longer able to vomit up the fluids as rapidly as they are poured into the stomach from the irritated intestines. Fluid is gradually replacing gas inside the intestinal tubes, and there is some dulness in the flanks from the fluid-laden intestines which lie in the bottom of the abdominal cavity. The stomach is getting exhausted with its never-ending toil, and is becoming visibly distended. The parietes are stretched to their utmost, but their muscles are now exhausted and limp, and the hard brawny feel of the earlier stages is not so marked. Distended coils of bowel are visible or palpable through the parietes, but they contract sluggishly or at long intervals. If one or more coils remain permanently distended and of the same dimensions, we may suspect fixation by recent adhesions; and if by percussion of such coils we get a true bell note, we may conclude that the gaseous globe is surrounded by or resting on fluid or fluid-laden bowel. Loud rushing sounds as

of currents of fluid may be heard through the stethoscope. The patient has drawn and pinched features, and his skin is beginning to feel cold and clammy. The pulse is 120 or over, and is small and wiry; his respirations are quick, shallow, and occasionally sighing or gasping. Now and again, overpowered with nausea, he makes an effort and vomits up a little gas and fluid, but much more remains behind. His mind is perfectly clear, but he is too utterly ill and weary to pay much attention to questions.

In this case anæsthesia is full of risk. For, first, the anæsthetic increases shock where such increase can ill be borne; and, secondly, it has a special risk of its own as tending to induce vomiting, which may suffocate the patient. The distended stomach should be emptied by passing the stomach tube before anæsthesia is begun, or at least before it is complete. And anæsthesia should be continued no longer than is necessary to make the parietal incision and place the sutures ready for tying—that is to say, from three to five minutes. All further manipulations may be carried out without pain to the patient and while he is recovering from the anæsthetic. It is wonderful how little these patients feel, and how quietly they will lie and languidly watch the proceedings being carried out for their salvation.

The cause of obstruction is found and relieved in the ordinary way. In this case, however, the intestine nearest to the seat of obstruction will probably be distended with fluid and not with gas; this means that it will have sunk down in the cavity below any air-containing bowel that may lie on the surface under the opening. But, although the direct cause of obstruction has been removed, the intestinal contents do not pass on, or only a little passes. There are two reasons for this, a physiological and a mechanical one. In the first place, the over-distended bowel is helplessly paralysed and powerless to contract on its contents. In the second place, there is mechanical obstruction from the distended bowel being kinked at its numerous acute flexures. In fact, there is an obstruction still present which is clinically as fateful in its results as if the bowel were still nipped. To relieve this obstruction, and at the same time to remove the numerous other evil effects of a distended abdomen, I would perform intestinal evacuation and drainage.

To do this effectually I would recommend that the surgeon sit down by the side of the patient, and spend an hour or two there doing it. As part of the operation I have successfully incised the bowel, evacuated its contents, sutured the wound in it, and returned it. But the bowel empties itself slowly, and to do this during anæsthesia greatly increases collapse. In this case anæsthesia is continued only during the very few minutes necessary for making the incision and inserting the sutures ready for tying. The relief of the obstruction and intestinal drainage—proceedings

that are almost painless—may be carried out while the patient is recovering from the anæsthetic or completely sensible.

The patient is completely enveloped in warm blankets, the area of operation only being exposed. A distended, but not inflamed, piece of bowel is brought to the surface, and at the four corners of an area about an inch square four quill-sutures penetrating the serous and muscular coats are inserted. These are tied two on each side to pieces of adhesive plaster carried around the back and fixed on the abdomen. Fixation in this way is more likely to secure steady apposition of gut to parietes than the hands of an assistant. A simple antiseptic ointment is smeared over the lines where bowel and parietal incision meet; this will prevent the entrance of any escaping fluid into the abdomen. The intestine, its outer coats being incised by a scalpel, is now gently pierced by a large needle—by preference in connection with a large aspirating receiver. But a long piece of tubing attached to the needle to carry the fluid to a distance will serve quite well. At first there is a free rush of fluid, and perhaps gas, with rapid collapse of the neighbouring bowel; then there is a check to the flow, when it merely dribbles or quite stops for a few minutes; but more fluid soon comes down, and so on the flow goes intermittently till after an hour or less the abdomen is almost flat. There is no difficulty in preventing escape of fluids into the cavity; from beginning to end scarcely a drop may escape by the side of the needle.

When we are satisfied that evacuation has been carried out to a sufficient extent, the needle is removed; the small opening in the bowel is carefully closed by a continuous stitch; the intestine is thoroughly cleansed and returned; and the sutures in the parietal opening are tied. The operation is thus concluded with a flat abdomen, the stomach having been presumably emptied and the intestines drained. What this means to anyone experienced in abdominal surgery requires only to be mentioned to be appreciated. If we are not satisfied with the amount of evacuation, then a piece of tubing of small calibre is placed in the needle opening and left there for a day or two. For this purpose the simple fixation described is, as I have proved more than once, quite efficient. It is quite unnecessary to suture bowel to skin. In this case I am supposing that the obstruction is relieved; if it is not relieved, the drainage may be carried on for weeks till the patient gains strength enough to bear a complete operation. Such operation is much easier with collapsed than with distended bowels.

I think it is wiser at once to perform enterostomy than to spend much time groping about for the cause of obstruction. The fact that enterostomy or intestinal drainage will, even if the cause of obstruction has not been touched, rescue a patient from death, is sufficiently well established to want no emphasising from me.—*British Medical Journal, Oct.* 11, 1890, *p.* 836.

54.—ON THE TREATMENT OF COMPLETE PROLAPSE OF THE RECTUM.

By Harrison Cripps, F.R.C.S., Assistant Surgeon to St. Bartholomew's Hospital, London.

Prolapse of the rectum is the descent of a portion of bowel in a healthy state, and must not be confused with hemorrhoids, which are chiefly due to a morbid condition of the terminal vessels. The prolapsing portion of bowel may in time become thickened and ulcerated, but this is merely a secondary result. Prolapse may be divided into two varieties—the partial and the complete. In the former the mucous membrane is alone extruded, gliding away from the muscular coat by the stretching of the loose fibrous tissue connecting the two. The complete prolapse is the turning inside out of the lower part of the bowel involving all the coats. Partial prolapse is necessarily of a limited extent, seldom involving more than an inch or two of the membrane. In the complete variety the extent is unlimited, and not infrequently a hernial pouch is formed into which small intestine may descend. Complete prolapse may occur at any time of life from infancy to old age. It is generally the result of undue straining, though occasionally caused by a polypoid growth. In children, in addition to straining, the disorder is often coincident with some weakening illness, causing absorption of the fat in the ischio-rectal fossæ, together with the relaxation of the muscular fibres of the part. Stone in the bladder and phimosis are not infrequently causes of prolapse in children, while occasionally in advanced life it is secondary to chronic constipation, stricture, enlarged prostate, or displaced uterus, any of which may produce injurious straining efforts. A prolapse may occur suddenly, but more frequently it is of a slow formation, slight at first, and gradually increasing. According to my observation, I should say that it is generally a sudden formation in children, but a gradual one in advanced life; occasionally, however, an extensive prolapse may suddenly occur in adults. As an example of this I have recorded a case occurring in St. Bartholomew's Hospital, where a protrusion the size of a child's head appeared suddenly at stool in a woman who had been previously perfectly healthy.

It seems probable that the starting-point of complete prolapse arises in the first instance from the sliding of the mucous on the muscular coat, for it is an undoubted fact that if the two coats can be made firmly adherent the prolapse is generally cured. The first effect of this sliding would be to produce a reduplicated fold of mucous membrane, and that such a fold is formed can be readily ascertained by a digital examination. If the patient be told to strain down loose folds of mucous membrane can be felt crowding down on to the finger, and such folds will first protrude

from the anus, but are quickly followed if the straining effort is continued by complete eversion of the gut.

The evidence that is occasionally afforded by a polypus of the mucous membrane is in the same direction, and shows how an intussusception of all the coats can be produced by a loosening of the mucous membrane at a particular point, for polypi almost invariably cause a reduplication of the mucous membrane at the point of their attachment. It would seem as if the mucous membrane is so loosely attached to the muscular coat as to slip away from it, forming a reduplicated fold, that the bowel will not only be dragged upon by the pressing downwards of the fold, but at this part the gut will be thinned and weakened by the loss of support which a firm mucous membrane would naturally have afforded, and thus a starting-point will be made for a general invagination. As an analogous illustration the finger of a glove may be taken, where, if an invagination is produced, it will start opposite one of the creases where the leather has become thinned. The symptoms produced by complete prolapse vary considerably. In some cases very little trouble is produced, while in others the greatest distress is caused. In many cases, after awhile, complete incontinence of fæces will result. In others the prolapsing gut is liable to ulceration, with all its concomitant symptoms of discharge and diarrhœa, while in every case the patient is subject to the danger of the prolapse becoming suddenly strangulated and irreducible.

Treatment.—This is best considered, first, as regards the method of returning the prolapsed and strangulated bowel in an acute case; and, secondly, as to the means of cure in chronic cases. As a rule, there is not much difficulty in reducing a prolapsed bowel, which can be accomplished by covering the protruding part with vaseline and gently pressing upon it with the tips of the fingers of both hands. It sometimes happens that it cannot be reduced on these easy terms, for, owing to the contraction of the sphincter, the protrusion has become greatly swollen. All manipulation in these cases should be very gentle, for fatal consequences have followed violence in replacing the intestine. Cruveilhier and Roche each mention such a fatality. In Roche's case, whilst the reduction was being attempted the patient made a violent straining effort, causing the rectal wall suddenly to split, and through the rent the whole of the large and a considerable part of the small intestine were extruded, the patient dying in a few hours. If the protrusion be strangulated, the patient should be placed under an anæsthetic and the sphincter gently stretched. In one case in which I had considerable difficulty in replacing the bowel I found the following manipulation useful. A strip of lint was wrapped round the index finger, the point of which was placed in the protruded canal of the gut, which was gently pressed upwards.

The piece of lint being dry stuck to the mucous surface, enabling it to be carried up with the finger. The finger, which had previously been oiled, was then withdrawn from inside the lint, which was temporarily left within the bowel. It is not, however, with these acute cases that the surgeon generally has to deal; for he is far more frequently consulted as to the best method of treating chronic cases. While here, again, the degree of the prolapse, the trouble it occasions, and the age of the patient must be taken into consideration. The treatment may be palliative or operative.

Palliative treatment.—This is often very successful in children. Attention should first be directed as to whether there is any condition present, such as phimosis or stone, causing undue straining; or whether the rectum is the seat of any polypoid growth. Assuming none of these are present, the ground is cleared for rational treatment. If the child is thin, plenty of good food, milk, and cod-liver oil, will help to restore the cushion of fat in the ischio-rectal fossæ, the absence of which doubtless facilitates the descent of the bowel. If in children prolapse can be prevented for two or three months, it will generally happen that the cure is effected by natural means—presumably by the attachments of the gut having time to become shortened, and consolidated. To obtain this desirable result, great care must be taken to prevent the motions becoming constipated. This can be generally attained by cod-liver oil and diet, while the position in which the child passes its motions is a most essential point. It must on no account be allowed to sit up to do so. The motion must be passed as the child lies on its side on the edge of the bed. If, while in this position, at the moment the motion is passing the mother or nurse will draw one of the buttocks upwards so as to pull the anus a little out of the middle line, it will almost certainly prevent the prolapse from coming down. After the motion the child should be kept lying on its side for some minutes, when a pad and a T-bandage should be firmly applied. This need not be worn for more than an hour or two. If the foregoing measures are adopted, operative measures rarely become necessary in children.

Palliative treatment in the adult is much less satisfactory than in children, and seldom succeeds in effecting a cure. Nevertheless, it may be right to give it a trial before adopting other means. The treatment which, with some slight modification, was long ago advocated by Brodie may be tried, but benefit cannot be expected unless it is pursued for some months. The patient should be cautioned against all straining, and should turn over on the side as far as practicable whilst passing a motion. A small injection of eight ounces of warm water should be given before going to the closet, while after the motion is passed one ounce of quite cold

water may be injected and retained, acting as a local muscular stimulant. If there be any superficial ulceration on the prolapsing bowel, a drachm of tincture of catechu may be added to the cold water.

Operative treatment.—Many cutting operations have been devised, varying from the removal of small portions up to the complete excision of the entire mass. Speaking generally, the partial removals have not been efficient. The most recent advocate of complete excision is Mr. Frederick Treves, and any opinion expressed as to its value by this eminent surgeon demands respectful consideration.

Of course it is not asserted that either the risk to life or the chance of a stricture prohibits excision for the relief of so distressing a condition as is produced by an extensive prolapse; nevertheless it makes it incumbent to defer the operation until remedies of a less severe nature have proved a failure. In the linear cautery we have an alternative operation, founded upon sound physiological principles, and one in which the risk is inappreciable, while the result is generally most satisfactory if sufficient care is taken in the subsequent treatment. The indication for treatment is to find some plan binding the muscular and mucous coats together, so as to prevent this initial slipping, while at the same time, if a certain amount of thickening can be produced so as to give a little extra stiffness to all the coats of the bowel, invagination becomes mechanically more difficult. The necessary conditions can be fulfilled by exciting inflammation in the submucous tissue. The exudation thus produced cements the two coats more firmly together, preventing sliding, while at the same time it affords an increased stiffness to the whole bowel. The actual cautery, as advised by Van Buren, is an admirable means of exciting the necessary inflammation. The method of operating is as follows: The bowels having been thoroughly cleared out, the patient, being under an anæsthetic, is placed in the lithotomy position. With a little manipulation the prolapse can be generally made to protrude. Four lines of cautery are now drawn along the bowel in its long axis, one in front, one behind, and one on either side. It should be managed so that these lines commence well within the canal of the bowel at the apex of the protrusion, and terminate at the anal margin. The width of the lines should be about a quarter of an inch, and their depth such as thoroughly to sear but not actually to destroy the mucous membrane. The lines of the cautery are pretty sure to cross one or more large dilated veins. These should be tied on either side of the lines, a needle threaded with silk being passed beneath them. The whole operation should be done pretty quickly, and the bowel returned, otherwise congestion and swelling will make its reduction difficult. If the prolapse does not protrude at the time of the operation, the lines of cautery can be drawn

along the bowel *in situ* by using a full-sized duckbill speculum, shifted as required for each line. Paquelin's cautery is not suitable for the purpose, for it is too hot when first applied and cools too rapidly. The instrument I employ is similar to that shown in the diagram. It is comparatively short in length, so as to admit of easy manipulation, and is made with a conical head, half an inch in diameter, bent at right angles. The shaft at the bend is made thin so as to prevent the heat being transmitted to the handle. Two of these irons are required, heated over a large spirit lamp, and used alternately. A thick indiarubber tube, with a third of an inch calibre, seven inches in length, is passed up the bowel for about five inches. Strips of oiled lint are then arranged round the interior of the bowel extending as high as possible. Cotton-wool thoroughly well dusted with iodoform is then evenly and carefully packed into the bowel between the tube in the centre and the oiled lint on the sides. This gives a firm, even support to the lower few inches of the bowel, while the escape of flatus, &c., is provided for by the tube. The support thus afforded at an early

stage is, I consider, very material. The success of the operation depends on the care that is taken to prevent the descent of the bowel during the early stages of healing before the adhesions have become firm. After forty-eight hours the whole dressing is gently removed, the part thoroughly washed, and a clean dressing replaced. The desire to strain has generally passed off by this time, and it does not seem necessary to pass the dressing far up the bowel. After the first few days internal dressings can be dispensed with, but the tube, cleaned daily, is kept in for ten days or more. It allows the easy passage of flatus without straining effort. By a small nightly dose of opium the bowels can be kept confined for ten days. Small doses of castor oil can then be given together with an enema if necessary. The patient must on no account sit up or strain, and the motion is to be passed lying on the side and the anus drawn a little from the middle line; and this should be enforced for at least six weeks, whilst consolidation is taking place, otherwise the whole advantages of the operation may be lost. I think it is from want of attention to these details that failure may often be attributed. My experience of this operation coincides with that of Mr. Herbert Allingham, and I am thoroughly satisfied with the results in those cases which have come under my care, though on one occasion the cautery had to be repeated. (Mr. Cripps concludes his paper by relating a case as an example of the operation, and of the benefit that may be expected.)—*Lancet, Oct.* 11, 1890, *p.* 758.

55.—ON THE BENIGN GROWTHS OF THE RECTUM.

By Charles B. Ball, M.Ch., F.R.C.S.I., Surgeon to Sir Patrick Dun's Hospital, Dublin, and University Examiner in Surgery.

Morbid growths are met with in the rectum and at the anus with great frequency, and, as compared with other portions of the intestinal tract, the fact that this part of the gut can alone be examined during life with facility renders the proportion met with in this region apparently large, yet it cannot be denied that the termination of the bowel is very much more frequently affected than the other portions by these growths. This is more particularly noticeable in the case of piles, or hemorrhoids, which constitute by far the commonest tumours of the rectum and anus, but are unknown in the other portions of the intestinal tract. Owing to the more potent sources of irritation to which the lower bowel is subject, the greater liability to tumour formation can readily be accounted for, and in the case of hemorrhoidal tumours there is a distinct anatomical reason for their existence here. During the passage of a solid mass of fæces along the great intestine, the contraction of the muscular tissue causes a considerable pressure to be exercised on the blood vessels. In the upper portions of the intestinal tube this is rather salutary than otherwise, as the vessels here are for the most part arranged at right angles to the axis of the bowel, so that the contraction of the tube empties the veins into the larger channels, and thus materially aids in the circulation of blood; but when the termination of the rectum is approached the conditions are materially altered, because the blood from the lower portion of the bowel passes up by the superior hemorrhoidal veins, the tributaries of which originate at the junction of skin and mucous membrane. These vessels, instead of being arranged at right angles to the axis of the intestine as is the case higher up, are parallel to the axis, lying immediately under the mucous membrane, so that as the fæcal mass is pressed onward by the contracting muscular wall, there is a tendency to force back the column of blood in the veins towards the tributaries, which are therefore liable to become dilated and varicose; indeed, a slight amount of varicosity of these veins is held by some authors to be normal. This liability is further augmented by the fact that the radicles of the superior hemorrhoidal veins have but trivial anastomoses with the inferior and middle hemorrhoidal veins, so that but little relief can be afforded to the distended veins by the passage of blood *viâ* the inferior and middle hemorrhoidal veins into the general or caval circulation.

Various terms have been used to designate the forms of hemorrhoids, external and internal, the former of which are subdivided into venous, cutaneous, and compound, while in the latter the

venous, columnar, and nævoid varieties are recognised. Now, although these varieties possess points which render them clinically important, it cannot be maintained that they are distinguished by marked pathological characteristics. When taken broadly, the pathology of all is practically identical, namely, increase and dilatation of the blood vessels, more particularly the veins with proliferation of the connective tissue. In the case of external piles the covering is the scaly epithelium of the anal canal, while internal piles are covered with mucous membrane.

I have elsewhere endeavoured to show that extravasation of blood is not an important factor in the pathology of piles. In the simple venous external pile which appears apparently suddenly, what really happens is this: A varicose condition of one or more of the inferior hemorrhoidal veins has previously existed without attracting the attention of the patient; it is only when thrombosis and perivascular inflammation supervene that the tumour is noticed, and the patient has what is known as "an attack of piles." That this is indeed an intravascular, and not extravascular, coagulation of blood can easily be demonstrated; if an incision be made into a simple inflamed external pile a blood clot can be turned out leaving a smoothly lined cavity in which an endothelial lining can be observed; moreover, as a result of stretching of the anus—now the prelude to almost all rectal operations—extravasation of blood is of very common occurrence, yet we invariably see it as a widely diffused ecchymosis, which is rapidly absorbed, and not as a localised blood clot similar to what we know as an external pile.

External piles which have been frequently thrombosed eventually become converted into but little else than connective tissue covered with scaly epithelium, the large dilated veins disappearing, the whole structure being not much more vascular than the surrounding skin; this is called the cutaneous or fleshy pile. A precisely similar change may take place in internal piles, resulting in the production of what is known as fibrous polypus of the rectum. This change, however, is not so common as in the case of external piles, no doubt owing to the more frequent irritation to which the latter are liable. From an examination of a somewhat large series of pile sections, it can be demonstrated that in cases of tolerably long-standing internal hemorrhoids, the dilated and thrombosed veins are less remarkable and the connective tissue more abundant and fully developed; this is a change which can be readily recognised in the living body; the soft and brighter red internal hemorrhoid becomes firmer to the touch and whiter in colour—indeed, in extreme cases, the covering is almost the same colour as the adjoining skin, instead of the bright red colour of normal mucous membrane. Once this change has occurred, the altered structure tends to become more and more

pedunculated until the fibrous polypus, attached by a more or less narrow pedicle, is produced.

Adenoma.—The polypus met with in early life is usually a true adenoma, and although probably occurring in all parts of the intestinal tract, is met with most frequently in the rectum. This may probably be due to the more frequent irritation to which this portion of the bowel is subject. It commences as a proliferation and general enlargement of the Lieberkühn follicles, which causes the mucous membrane to buckle up. When this has reached a sufficient size to offer an obstruction to the passage of fæces, and be dragged upon by peristaltic movement of the intestine, a pedicle is formed. When the tumour originates high up, the pedicle becomes gradually elongated until the polypus touches the anus, and is finally extruded at defæcation; it may then be strangulated, or the pedicle ruptured and the tumour voided; while in other cases prolapse or intussusception may be induced. These tumours rarely grow to a large size, and are usually single; they may, however, occasionally be multiple, and in a few rare cases the entire surface of the mucous membrane may be studded with them.

The adenoid tissue found in purely benign polypus differs structurally in no respect from that found in the most malignant of rectal cancers, the great majority of which are of the adenoid type, except that in the former the tendency is to project into the lumen of the bowel, and become pedunculated; while in the latter the muscularis mucosæ is rapidly perforated, the muscular tissue of the bowel infiltrated, while the ulceration, invasion of surrounding structures, implication of lymphatic glands, and occurrence of metastatic growths, which characterise carcinoma in other parts of the body, become manifest. In some cases of cancer, however, pedunculated growths are met with, but they are unlikely to be confounded with the simple glandular polypus, as the induration of the surrounding structures, the irregularity of the growth, and the discharge, will suffice to make the diagnosis. The way in which this occurs is that as the cancerous infiltration is destroyed by ulceration, islands of tolerably healthy mucous membrane are left, and these tend to become more pedunculated as the ulceration spreads. We do, however, meet with apparently benign adenomatous growths coexisting with malignant disease.

Papillomata of the anus differ in no respect from similar structures in other parts of the body when covered by scaly epithelium. Fig. 5 was taken from a typical case, and illustrates very well the structure; they sometimes grow to a considerable size. I have removed one a quarter of a pound in weight. When occurring in the interior of the rectum they are known as villous tumours, but as yet I have been unable to make a minute examination of a well-marked case of this variety. Myomata are rarely met with

in the rectum; they form firm more or less pedunculated growths, originating in the muscular tunic, and having the mucous membrane freely moveable over them. Infiltrating lymphosarcoma has been observed in several portions of the intestinal tract, but pedunculated growths, unassociated with obvious lymphoid disease in other parts of the body, is, as far as I know, previously unobserved.

Amongst the pathological curiosities which have been found in the rectum we find records of lipomata, teratomata, enchondromata (?), and diffused angioma, which I believe complete the list of benign tumours of this region.—*British Medical Journal, December* 3, 1890, *p.* 1353.

56.—CHOLECYSTOTOMY FOR GALL-STONES, PERFORMED ON THE STRENGTH OF SYMPTOMS WITHOUT PHYSICAL SIGNS.

By A. W. Mayo Robson, F.R.C.S., Surg. to the Leeds Infirmary.

On Oct. 25th of last year I had the honour of reading before the Clinical Society of London a paper based on fourteen cases of Cholecystotomy. Since that time I have performed the operation nine times without a death, making in all twenty-three cases. In my former paper I gave brief histories of five cases operated upon on the strength of symptoms alone. I have now to add to that series two more cases, notes of which I now give.

Mr. P. B——, aged twenty-nine, residing at Wyke, near Bradford, was sent to see me by my friend Dr. Dearden early in June of last year, when he gave the following history:—He had been quite well up to twelve months ago, when he was seized whilst at work with a sudden attack of severe pain on the right side of the abdomen just below the ribs, which compelled him to return home. The attack lasted for several hours. No jaundice followed, and he was able to return to his duties in a day or two. Ever since that time he had been subject to similar attacks, but on no occasion had he been jaundiced, and he had never noticed any swelling in the region of the liver. The attacks did not recur periodically, he having had once an interval of a month without an attack, whilst on other occasions he would have several in a week. On several occasions the spasms had come on when he was in bed. The attack which he had just previously to admission, lasted six hours. At no time had the motions been clay coloured or the urine specially dark. He was admitted to the infirmary on June 6th, in order that he might be watched for a time, but beyond having several attacks of pain of a similar character no physical signs were noticed. On June 19th cholecystotomy was performed. The gall-bladder was found to be small, and lying well under cover of the liver. One gall-stone was found loose in the gall-bladder, and five others were removed from the cystic

duct by means of forceps within, aided by fingers on the outside of the duct. The gall-bladder was so far from the surface that the lower edge of the incision could not be brought to the parietal peritoneum, hence the omentum was made use of to shut out the general peritoneal cavity. This was effected by bringing up the right border of the omentum, stitching it to the incision in the gall-bladder and then to the parietal peritoneum. A drainage-tube was inserted into the gall-bladder, and bile commenced to flow as soon as the operation had been completed. On June 25th the drainage-tube and sutures were removed. On July 4th the discharge had diminished considerably. On the 12th the wound had almost healed, and on the 26th it had perfectly closed. The patient was seen in September, when he was looking and feeling perfectly well, and said that he had not had an attack of pain since the operation.

Mr. R——, aged fifty, was sent to see me by my friend, Dr. Britton of Harrogate, in April of last year. He gave the history of having been perfectly well up to June, 1889, when he had a severe attack of pain in the region of the liver, which lasted for several days, but which was not followed by jaundice. He had no further attack until November, and between November and Christmas he had five similar seizures. Between January and his seeing me in April he had had seven attacks, only once having been slightly jaundiced, the yellowness of the eyes then only lasting three days. Having very little doubt that the attacks were due to gall-stones, we had the motions carefully examined, and on May 5th, although there had been two attacks since Mr. R—— saw me in April, no gall-stone had been found, although carefully searched for. It was thought that during the attacks of pain a swelling had been noticed on the right side of the abdomen, but this point was not very definite, and when I saw Mr. R—— there was an entire absence of physical signs. Cholecystotomy was recommended and performed on May 6th, when one gall-stone, the size of a cherry, without any facets, was removed from the gall-bladder. Bile flowed at once, and the drainage-tube was removed on the third day, the stitches being taken out on the eighth. At the end of a fortnight the wound had quite healed, and Mr. R—— returned to his home at the end of three weeks. He has remained quite well since, and is now in perfect health. The interest in this case lies in the fact that all the symptoms were dependent on the one calculus.

Besides these cases which I have operated on, I have seen a considerable number of patients whose symptoms were similar to the above, and where I made a diagnosis of cholelithiasis and recommended operation; and I believe that by far the greater number of patients who are suffering from repeated attacks of so called spasms are in reality suffering from gall-stones, and can

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therefore be relieved if their symptoms are so severe as to require active interference. It must always be borne in mind that unless the gall-stones are small and can be passed, they tend to increase in size and number, and may ultimately lead to most serious complications, among which may be mentioned: (1) Exhaustion from repeated attacks of pain, (2) fatal collapse from acute agony (I have known in one case death to ensue from pain alone, as proved by post-mortem examination); (3) fatal jaundice, (4) dropsy of the gall-bladder, (5) empyema of the gall-bladder, (6) abscess of liver, (7) local peritonitis, (8) perforation of the gall-bladder or ducts, causing abscess, peritonitis, septicæmia, intestinal obstruction, or hemorrhage. Bearing in mind these dangers of cholelithiasis, and knowing with what little risk the operation of cholecystotomy can be performed if done carefully and with due precautions, I have no hesitation in recommending operation whenever there are repeated attacks of biliary colic apparently due to gall-stones, which do not yield to a definite course, not necessarily very prolonged, of medical treatment.—*Lancet, January* 10, 1891, *p.* 79.

57.—ON THE INDICATIONS FOR THE RADICAL CURE OF HERNIA IN CHILDREN.

By R. W. Parker, M.R.C.S., Surgeon to the East London Hospital for Children, Shadwell.

The value and justifiability of an operation depend entirely on the danger or inconvenience of the disease or condition for the alleviation of which the operation is undertaken.

It will hardly be necessary to argue such a well-known fact that a considerable number of cases of congenital hernia show no tendency to spontaneous cure, even when a suitable truss has been worn for long periods and the child has had every needful attention. Among the children of the poor the tendency to spontaneous cure is even smaller, owing to the want of the necessary care and attention.

I should recommend an operation for all cases of congenital hernia in which the hernia persists at 2 years of age and over—especially so if the hernia be large and if other measures have been adequately tried and failed. I should not urge the operation very strongly if the hernia were small, and if other measures had not been adequately tried, provided that such measures were at once tried and persisted in, say for six months; but, if afterwards the hernia remained uncured, I should strongly recommend operation. In children of the working classes, who when grown up would have to work hard for their living, I have no sort of doubt that a radical operation is the right thing to recommend in all cases after 2 years of age, and in some large herniæ even short of

that age. Among the better classes a hernia is a grievous infliction; during school life a hernia makes participation in outdoor exercises more than usually dangerous; and a little later in life bars the entrance to many a career, which would otherwise be open, and for which the individual is in other respects well qualified.

The Listerian doctrine has brought about such a remarkable change in the results of surgical operation, has placed success on such a secure footing that it can now be relied upon almost with certainty, and has reduced mortality so much by demonstrating the real sources of danger, that an operative measure can now be recommended with much greater confidence than was the case even in the near past. Hence a greater confidence in recommending the radical cure of hernia in cases in which formerly the surgeon might reasonably have hesitated to do so.

The results of operations are already very satisfactory, and it can hardly be doubted that improvements in our procedures will continue, and so constantly reduce the minimum of danger which is still an element to be reckoned with, though hardly a substantial argument against operation in a considerable number of the total cases. I hope that within a few years it will be quite an exception to meet with congenital herniæ in adults, and that all such deformities will be treated during early childhood, while the tissues are healthy and in the best conditions to secure a perfect result.

As to the method of operating, probably every surgeon has his own method and prefers it to that of others. I incline to think that a method which is well adapted for adults with large scrotal herniæ cannot be applied with equal fitness to a young child. Some of the methods described appear to me unnecessarily complicated; this may, however, be necessitated by the amount of deformity and the distortion which the parts have undergone anatomically, and which are seldom or never seen in young children.

The operation I have practised now for many years is exceedingly simple. An incision about two inches long is made, the upper portion of which corresponds with the position of the external abdominal ring, and the sac is exposed; the latter is then cleared of its looser and more external layers. I do not dissect off all the adventitious structures of the sac, for the sac proper, peritoneum, in children is exceedingly thin and liable to tear; moreover, I think the result is firmer and less liable to relapse. Then, after getting the spermatic cord well out of the way, I pull down the sac as far as possible, and put in three or four stitches, drawing the neck of the sac firmly together, but not tight enough to strangle it. My object is to retain the silk ligatures permanently *in situ* or as long as possible; if they are drawn very tightly together the stitches are liable to cut their way out, and so lead

to failure. The neck of the sac is now allowed to retract itself back within the external abdominal ring, after which the pillars of the latter are sewn together and the wound closed, being first well irrigated and all bleeding arrested.

I prefer silk which has been well boiled in carbolic lotion, 1 to 20, to any other material; the longer it remains unabsorbed the better, for thus we have the mechanical help which its presence gives until complete adhesion of the sac walls has been brought about.—*British Medical Journal, Feb.* 7, 1891, *p.* 279.

58.—ON THE OPERATIONS FOR THE RADICAL CURE OF HERNIA IN CHILDREN, AND THEIR VALUE.

By Henry O'Neill, M.D., Surg. to the Royal Hospital, Belfast.

In considering the important subject of the operations for the radical cure of hernia in children, and their value, we should first consider the class of cases suitable for the operation. To my mind, the most suitable cases for this operation are:—

1. The children of poor people who have not the means of buying trusses, and who have not the time to look properly after the daily application of the trusses when they are able to buy them, for unless a truss is properly fitted after the hernia has been reduced, it is worse than useless; it is dangerous, because the pad of the truss may bruise the intestine and cause peritonitis or enteritis.

2. In children where the hernia is so large that an ordinary truss is not sufficient to keep it reduced while the child is running about playing.

3. In most cases where a truss has been worn for at least twelve months without any improvement, but where the hernia is increasing in size.

4. In persons who are likely to become labourers, or artisans who may have heavy work to do.

5. In each case after herniotomy has been performed for the relief of strangulated hernia.

As regards the method to be employed, each case must be treated on its merits, and this cannot be decided until the sac has been exposed; then if the sac can be easily separated entire, and is congenital, I have found Macewen's method the best; if, on the other hand, the sac has been torn and the wound not easily closed by suture, Banks's method—ligaturing the sac close to the neck and cutting off the sac half-an-inch below the ligature, and suturing the upper end of the sac to the abdominal muscles above the internal abdominal ring—may be adopted; or Barker's method, where the sac is ligatured in two places and divided between the ligatures, the upper part sutured to the abdominal muscles (as in Banks's method), and the lower part being retained in the scrotum;

or Ball's method, who twists the sac several times before ligaturing it close to the neck.

The conditions to be observed to ensure success are: (1) prepare the patient several days before operation by giving him a warm bath each day, keeping the bowels free with a mild purgative, giving milk food, and keeping him in bed. On the morning of the operation, thoroughly cleanse the skin of the injured region by washing the parts with soap and water, then turpentine, ether, rectified spirits of wine, and lastly, carbolic or creolin lotion (1 in 30). (2) Arrest all hemorrhage (which is trifling) by forcipressure forceps (Spencer Wells's are good). (3) Drain the wound with decalcified chicken bone drainage tube. (4) Use chromicised catgut sutures for all the sutures and ligatures. (5) Bandage the dressings (wood wool or absorbent wool) on firmly with india-rubber web bandage. (6) Dress the wound seldom, and only when the discharges stain the outer dressings, or when the temperature rises suddenly above 101°. (7) Give an opiate at night for two or three nights. (8) Give an anæsthetic during the first and second dressings to prevent the child from crying, and straining the abdominal walls.

I have had no deaths from this operation. I consider this operation only requires to be understood by surgeons to be generally adopted, and when the details of the operation are carefully carried out in suitable cases the results are most satisfactory. I have seen, or have had examined by other surgeons, four of my youngest cases, their ages varying from $2\frac{3}{4}$ years to 7 years, now over two years after operation, and find no return of the hernia. No truss was required by any of the patients, except in one case (the case of double hernia), where the cicatrix on the right side was weak soon after leaving hospital, and a truss was worn for a few months, but now the parts are quite firm, and there is no evidence of any return of the hernia.—*British Medical Journal, Feb.* 7, 1891, *p.* 278.

59.—ON THE TREATMENT OF CERTAIN CASES OF RECENT HERNIA BY ASPIRATION OF THE PROTRUDED GUT.

By John Hern, M.D., Surgeon to the Darlington Hospital.

On being called some years since to a case of recently strangulated hernia, which I failed, under chloroform, to reduce by taxis, finding the tension in and distension of the protruded gut apparently the main obstacle to reduction, I emptied it by means of my hypodermic syringe, with the result that reduction was at once easily accomplished. I have since repeated the operation on thirty-two occasions, in twenty-eight of which reduction was readily accomplished, and in the remaining four three were, subsequent to aspiration, subjected to the usual operation (with one

death from gangrenous gut), and one steadfastly preferred death to further operation, and succumbed on the tenth day. In neither of the three cases of herniotomy could any traces be found of the previous aspiration, due, I think, to two causes (1) the small size of the needle used—small hypodermic syringe; (2) the arrangement of the fibres (muscular) in the wall of the gut. The class of cases which have appeared to me most suitable for the operation are (1) recent cases—36 to 48 hours or less; (2) where the patient or friends refuse to submit to herniotomy. The simple aspiration can be designated "doing a little something." The advantages claimed for this procedure are:—

1. It avoids the delay almost inseparable from the herniotomy, for example, gaining consent of friends, procuring adequate assistance, etc.

2. It avoids rough and heroic attempts at reduction by taxis by placing in the hands of the general practitioner a means of reduction easy of application, and requiring no extensive surgical skill for its performance, and, moreover, a proceeding which, by reducing the tension of the protrusion, lessens the danger of the taxis subsequently employed.

3. It avoids the risks of pyæmia and septicæmia, inseparable from all operations in which the skin is divided.

Let us consider in how far this operation is based on a consideration of the anatomical and pathological conditions present. We must remember that the internal abdominal ring, the inguinal canal, the external abdominal ring, the crural ring, the crural canal, and the saphenous opening in the fascia lata of the thigh are all bounded chiefly, if not solely, by aponeurotic structures, which have become thickened and resistant although the openings have all become dilated. The margins of these openings forced back and thickened offer a strong passive resistance, so that if the protrusion becomes distended in any way by fæces or flatus, the neck or narrow portion is so wedged into these fascial openings or canals that it becomes compressed, the venous circulation impeded (both arteries and veins are, of course, compressed, but the thicker coats of, and the greater force of circulation in, the former render them less affected by the pressure), the proportion between the protrusion and the opening or canal through which it has descended becomes so altered, that the hernia becomes irreducible. Now, seeing that (in recent cases, at any rate) it must be the distension of the protrusion which is the main obstacle to reduction, there having elapsed no time for the effusion of lymph or other inflammatory changes to occur,—having failed to reduce by taxis, it appears to me to be a perfectly justifiable proceeding to at once empty the protrusion of whatever fluid or flatus it may contain, and, having thus lessened its bulk, to reduce by taxis.—*British Medical Journal, Feb.* 7, 1891, *p.* 280.

60.—A CASE OF RECURRENT TYPHLITIS; REMOVAL OF DISEASED VERMIFORM APPENDIX; RECOVERY.

By T. Pridgin Teale, M.A., F.R.S., Consulting Surgeon to the General Infirmary at Leeds.

Early in October I was requested by Mr. Raynes, of York, to see Mr. P., a cricketer and football player, who was beginning to recover from a fourth attack of inflammation in the region of the cæcum. My advice was that as soon as all acute symptoms had subsided he should come into the Leeds Infirmary with a view to operation.

History.—In November, 1889, during a game of football, he was "tackled" round the waist and thrown to the ground. No harm seemed to result, but in March last he was seized with pain in the right iliac fossa for the first time. The pain soon passed off, but returned the next day, and continued with increasing intensity for about three days, when a tender swelling was discovered in the iliac region. At the end of three weeks the attack subsided. There had been neither sickness nor constipation. Six weeks from the commencement a tumour could be felt on deep palpation in the right iliac fossa. At the end of seven weeks he had a second attack, much like the first, which lasted three weeks. After a week's convalescence a third attack set in, which practically kept him an invalid, unable to work, until the fourth and most severe attack in the beginning of October, about which I was consulted. The lump found after the first attack could be felt in the intervals, but was now obscured by the tympanitic state of the abdomen, the body being "as hard as a board." At this time no tumour could be felt *per rectum*. There was great tenderness over the iliac region, and the bowels acted with difficulty. Seeing that he had been practically an invalid and disabled from following his employment for six months, that he had been almost constantly in pain during this period, that the attacks increased in severity and in the tendency to obstruction of the bowels, and that there was a persistent hard swelling to be felt in the situation of the cæcum, I decided to operate.

Operation.—October 13th. The patient being under ether, I made an incision about four inches long directly over the tumour, in the line advised by Mr. Treves in his most instructive paper published in the British Medical Journal for November, 1889. The incision, passed obliquely inwards and downwards between the umbilicus and crest of the ilium, and, ended a little above and to the outer side of the middle of Poupart's ligament.

On opening the peritoneal cavity the tumour was reached easily, and consisted of adherent omentum and small intestine surrounding a harder centre. By dint of great care in separating, tying, and dividing the adherent omentum, and in gradually disentang-

ling adherent bowel, the imprisoned vermiform appendix was cleared of all adherent structures, and fully exposed. A catgut ligature was applied a quarter of an inch from the cæcum, and the enlarged appendix was cut off one-third of an inch from the ligature, the end of the stump being invaginated and stitched. After due cleansing and washing out by boiled water, and the introduction of a drainage tube, the wound was closed by stitching together first the edges of the peritoneum, and afterwards the muscular and cutaneous sides of the wound. The drainage tube was removed in forty-eight hours. Recovery took place without a drawback, and he was allowed to sit up in three weeks and two days. Eight weeks after the operation he was perfectly well, was recovering from the anæmic state to which he had been reduced, and had entirely lost the pain which for six months had rarely left him. His report of himself on December 17th is: "I am able now to take the same meals as the rest, and also to walk two or three miles a day without feeling tired or any the worse for it."—*British Medical Journal, Jan.* 17, 1891, *p.* 110.

61.—ON APPENDICITIS—CHOICE BETWEEN OPERATIVE AND EXPECTANT TREATMENT.

By Lewis A. Stimson, M.D., Surgeon to the New York and Bellevue Hospitals.

[At the New York Surgical Society on October 8th, 1890, Dr. L. A. Stimson made an important contribution to the study of Appendicitis, in which he records no less than twenty-one cases which had come under his own observation during the twelve months immediately preceding publication. The cases are grouped as follows:—Eight cases not operated on, two of which were fatal. Three cases treated by operation—simple evacuation of an abscess; two of these recovered completely (in one the abscess was opened through the rectum), and one recovered with a fæcal fistula remaining. Ten cases were treated by laparotomy, with opening of the general peritoneal cavity; eight of these recovered, and two died. The paper concludes with the following general observations upon the condition in question.]

Concerning the diagnosis I have but little to add. The localisation of the maximum of pain, or of the only pain, on pressure at or very near the point indicated by Dr. McBurney, two inches from the anterior superior spine of the ilium on a line drawn from it to the umbilicus, has been constant, and, in pointing out this symptom, Dr. McBurney has rendered us a service which it is difficult to estimate too highly; it has made the recognition of appendicitis, in its early stages at least, easy for every one. In several cases I have found the point of tenderness a little lower, or that it covered a relatively large area downward.

It may justly be objected that the appendix is not the only organ in the right iliac fossa that may be the seat of pain, but, except in the case of women, the objection appears to have no practical importance, and the disease is much less common in women than in men. An answer that seems to me to be entirely sufficient to the objection that the group of symptoms mentioned is not sufficient for the diagnosis is found in the fact that it has been tested in a very considerable number of operations and no error in diagnosis has yet been reported. It is, of course, understood that the value of this symptom is greater in the cases in which an abscess of considerable size has not formed or the abdomen is not greatly distended and rigid.

While the diagnosis is easy in the early stage, and also in the late one in which a large fluctuating tumour is present in the right iliac fossa, it may be surrounded by much uncertainty at other stages and in other forms. The case may not be seen until after the attack has lasted several days, and it may be impossible to obtain an intelligible account of the earlier symptoms; the abdomen is distended and rigid, vomiting is persistent, the bowels have not moved. Is it appendicitis, or one of the varied forms of intestinal obstruction, or a peritonitis due to some other cause? If there is a history of a previous attack, and if pain is found especially at McBurney's point, we may, I think, make the diagnosis with considerable confidence, especially in view of the relatively great frequency of the affection.

But the recognition of the existence of appendicitis is not all that is needed. We must also seek to know its character and probable development. Is it a simple catarrh that will resolve in a few days? will pus form, and, if so, can we safely await the evolution of the abscess? or is an unprotected perforation or the rupture of a small abscess about to occur? The aids to answering these questions are few and not very helpful, and yet the questions are of the utmost importance; upon the answer turns the choice between operative and expectant treatment; the issue may be life or death.

Upon the question whether suppuration will or will not occur, or whether it has not perhaps already occurred, we can, I think, find some guidance in the height and persistence of the fever. If the temperature is above 102° two days after the beginning of the attack, suppuration is, I believe, imminent or already present.

As to the imminence of an unprotected perforation, a perforation with immediate infection of the general peritoneal cavity, I know of no guide. We have seen it occur abruptly without the slightest warning in one case and with only such warning as was contained in slight transitory pains during the preceding two days in another.

The degree of the pain at the onset tells us but little. If very severe, it may be the sign of a perforation that has placed the

patient's life in the greatest danger, or, as in a case reported by Dr. McBurney last May, in which a grain and a half of morphine was required to control the pain, there may be no perforation, no peritonitis, no suppuration. Let me add, however, that severe pain occurring *in the course* of the affection has very great significance; it means the rupture of the appendix or of an abscess into the general peritoneal cavity.

Grievous as the conclusion may be, it must be admitted that we are wholly unable to distinguish at the beginning the case that will end in recovery, even if left to itself, from that which will put the patient's life in the greatest danger; we are even unable to assure the patient that before the door closes behind us he may not have passed into the very jaws of death. As Dr. McBurney has said, there seems to be no better way of improving our methods of diagnosis than the exploratory incision; and he added: "If it can be shown by future experience that the exploratory incision for inspection of the diseased appendix is much more free from danger than the expectant treatment, then there could be but one answer to the question, what is the best treatment?" As part of the material to be accumulated for that purpose, my list furnishes five operations in the early and doubtful stage without a death, and even without a moment's anxiety beyond that which belonged to the taking of the step.

Turning now to the question of *treatment*, we find, as already stated, twenty attacks treated medically, with eighteen recoveries and two deaths; but if to these we add those in which surgical aid was required at a later period in the case, we have twenty-eight attacks with four deaths. This is the most favourable showing that this group of cases can be made to give for medical treatment; if previous attacks are excluded, and only those taken which I saw, the record stands sixteen cases with four deaths, a mortality of 25 per cent., and ultimate resort to surgery in eight—exactly one half. Again, including previous attacks, in order to meet as far as possible the objection that the surgeon naturally sees an unduly large proportion of cases requiring operation, we have twenty-eight attacks, ten of which (adding the two deaths), or more than one-third, required surgical treatment. It is to be remembered also that most of the surgeon's hospital cases have gone to the hospital, not specifically for operation, but for treatment, and that to that extent his experience is the same as that of the general practitioner. Further, this list contains cases to which I was called as a surgeon, but in which no operation was done.

In connection with this I will quote the statistics of a physician, Dr. Fitz, seventy-two personal cases, the largest number yet reported (Trans. of the Assoc. of Amer. Physicians, 1890, p. 39). He says: "Seventy-four per cent. recovered and 26 per cent. died. About one-half of them were treated medically, the other

half receiving surgical treatment (presumably in the later stages of the affection). Of those treated surgically, 40 per cent. died, while of those under medical treatment 11 per cent. died. The percentage of cases ending in resolution was 36 per cent., which is practically the same previously found. Medical treatment should, therefore, be limited to a little more than a third of the cases." This, I repeat, is the opinion of a physician. The rate of mortality of Dr. Fitz's list is the same as that of mine; its rate of call for surgical aid even higher—two-thirds as against one-half. To his expression of opinion I add that of another physician, Professor Bridge, of Chicago (Ibid., p. 34): "Surgery is imperative in cases of acute inflammation in the cæcal region with rather protracted high temperature that does not show positive evidence of subsidence within two days, or three or four days from the beginning." Dr. Fitz's brief summary of the indications for operating in the early stage is practically the same. He advises it for "urgent symptoms (rising pulse and temperature, increasing distention, and spreading pain), with or without a tumour."

This is about as much as any surgeon has advocated. We do not urge that a laparotomy should be done in every case as soon as the patient is seen, and we fully recognise the fact that an operation is a very different thing to the person at the other end of the knife—that the average patient would choose expectant treatment with greater risk rather than operative treatment with less risk. But if death or an ultimate resort to surgery is inevitable in from one-half to two-thirds of all cases, and if from the remaining one-third or one-half we exclude those in which improvement appears by the third day, the choice is more apparent than real; it is not whether the patient will submit to operation, but whether he will have it at once or later. And if the waiting carries the chance of a complication that may make interference hopeless; if the late operation itself shows a relatively enormous mortality (40 per cent. according to Fitz, 35 per cent. in my list); if, as Fitz states, recurrence is as frequent in those who undergo the late operation without removal of the appendix as in those who recover without operation; and if, as I fully believe, the risks in an early operation properly performed are small—can it be doubted that the early operation is the wiser choice?

By waiting a day or two at the very beginning to see if the attack may not subside spontaneously, some lives will undoubtedly be lost—some of those, for example, in which unprotected perforation takes place; but these are the exceptions, the possibilities, not the probabilities, and are to be classed with other exceptions, like those in which recovery takes place by spontaneous evacuation of an abscess through the bowel.

Our action must be guided, not by the possible one, but by the probable nine or nineteen or ninety-nine. If the patient, with a full understanding of the matter, is unwilling to take even that risk, then I believe the surgeon is fully justified in operating immediately, exactly as he is justified in operating after an attack has ceased in order to prevent recurrence. But in such cases the decision should lie with the patient.

And in connection with recurrences, let me repeat that my experience indicates that the danger of a recurrent attack is greater than that of a first one, and that in such it is perhaps wiser not even to wait to see how the attack will turn, but to operate at once.—*New York Medical Journal, Oct.* 25, 1890, *p.* 454.

[For Dr. Stimson's "Points in Operating for Appendicitis," see *Synopsis* of this volume. The reader is also referred to an important paper on "Early Operative Interference in Cases of Disease of the Vermiform Appendix," by Dr. McBurney, in *Retrospect*, vol. ci., p. 313.]

ORGANS OF URINE AND GENERATION.

62.—ON THE OPERATIVE TREATMENT OF THE ENLARGED PROSTATE.

By William T. Belfield, M.D., Chicago.

It is common knowledge that in a considerable number of subjects of prostatic enlargement palliative measures—hygiene and the intelligent use of the catheter—are inadequate to avert or to remedy a fatal cystitis and consecutive pyelo-nephritis. These cases were formerly regarded as virtually beyond surgical aid; aside from the relief of retention by the catheter, or when that failed by puncture, they were abandoned as hopeless. The rise of vesical surgery in the last decade furnished among its early achievements the complete relief of prostatic cystitis by temporary drainage of the bladder, now a standard operation. Yet this measure, though extremely gratifying in its immediate results, is in theory unsatisfactory and in practice but too often of only temporary benefit. The relief so obtained is of uncertain tenure; the factors which originally induced the malady remain undisturbed; they may, and as experience shows they often do, cause a recurrence of the vesical inflammation. A rational procedure should aim to secure not merely cessation of existing cystitis, but also, by removal of the cause, prevention of its recurrence—a radical instead of a palliative operation. Various measures have been practised to secure this result, especially during the past five years; it is the purpose of this writing to collate these experiences in order that a definite plan of procedure in such cases may be deduced, so far as present knowledge justifies such deduction.

The simplest method of affording lasting relief is evidently the formation of a permanent suprapubic artificial exit, which avoids the obstructing prostate. This measure has been often executed in the past half-century, usually by puncture with a trocar, sometimes by cystotomy, a tube being more or less constantly worn subsequently. To obviate the frequent dribbling of urine and the wearing of a plug, McGuire, of Richmond, has in eight cases made the fistula run obliquely from the lower end of the vesical wound to the upper angle of the cutaneous incision, some three or four inches long, and bearing "the same relation to the bladder that the spout of a coffee-pot does to the bowl." By this ingenious arrangement the urine can be completely retained, he says, from two to six hours. Morris, of New York, has in one case clothed the fistulous track with skin by transferring narrow cutaneous flaps into the wound at the time of operation, thereby securing a better lining for the fistula and diminishing its tendency to spontaneous closure.

The permanent suprapubic fistula is a mutilation obviously to be employed only when the restoration of the urethral channel seems impracticable. Aside from the objections on the score of sentiment and comfort, the fistula cannot be relied upon to secure immunity from cystitis; thus Bennett May mentions three instances of such failure in his own practice. The explanation of the failure is perhaps that the projecting portions of the prostate prevent complete evacuation of the vesical contents; and probably that these tumours, like other neoplasms and foreign bodies, induce mechanical irritation of the bladder. The latter condition seems to have been exemplified in one of May's cases, which, after the fistula had failed to give relief, was entirely cured by the removal of a large middle lobe.

The theory of the radical operation assumes that the cause of chronic retention is mechanical obstruction by the enlarged prostate; that such prostatic obstacles are capable of removal; and that after such removal the bladder will resume its function of voluntary evacuation. These propositions have been separately and collectively denied by three of the foremost among living genito-urinary surgeons—Thompson, Guyon, and Socin. The accumulated clinical observations of the past five years prove that these traditions of the earlier surgeons, upheld by Guyon and Thompson—which have dominated surgical opinion and practice—must be restricted to a minority only of prostatics. For it is clearly demonstrated—

(1) That there is a larger class, entirely distinct from these, in whom the failure to evacuate the bladder is due in no wise to degeneration of the vesical muscles, but solely to the mechanical obstruction offered by prostatic growths; since the removal of such obstacles has been followed in over two-thirds of the cases

previously dependent upon the catheter, by restoration of the vesical functions.

(2) It is shown that the enlargement of the prostate commonly called "senile" hypertrophy is not limited to advanced life. Thompson has strenuously taught that "it never appears but in advanced years," the minimum age being fifty-six; "I have never been able to meet with an instance of its occurrence at so early a period as fifty-three years of age." Many others have seen it in younger men: McGill removed a prostatic collar, "the size of a large walnut," from a man aged fifty-three; M. Schmidt, a large middle lobe from a man of fifty-two; the writer has removed a prostatic growth from a patient aged forty-nine; Dunn excised a tumour of the lateral lobe from a man of forty-five; Iversen described a case at thirty-six, which Güterbock says is no rarity.

(3) That the prostatic obstruction is usually—contrary to the opinions of Guyon and Thompson—of such form as to permit excision, is shown by the fact that in sixty-two out of seventy-seven cases of supra-pubic incision, such obstacles were found and removed. These tumours when microscopically examined have been reported as fibro-myomata, enclosing more or less glandular structure.

The assumptions upon which the radical operation is based are therefore justified by experience; it is proven that in many prostatics the source of the evil is to be sought not in sclerosis nor senile degeneration of the bladder, but in mechanical obstruction by prostatic tumours; that these tumours are not a product of sclerosis, nor of senility, nor even limited to advanced life; their greater frequency after forty years of age is paralleled by that of other tumours, particularly the fibro-myomata of the homologous organ, the uterus—which are not considered an attribute of senility; that these tumours are in most instances susceptible to removal; and that in such cases a well-executed radical operation restores voluntary urination.

It is indisputable, however, that in many prostatics of advanced age a degeneration of the vesical walls coexists; the contractility of the bladder is seriously impaired, and removal of the prostatic obstruction fails to restore voluntary evacuation of the organ. The proof of this condition is furnished, as Guyon points out, by occasional cases of chronic retention and cystitis in elderly men *without* prostatic obstruction or other mechanical obstacle; the failure to evacuate the bladder being due simply to impairment of the vesical contractility. In nearly one-third of the cases on record the radical operation failed to restore voluntary urination; while in several it is evident that the removal of the obstacle was incomplete, yet in others the explanation of failure seems to have been impaired vesical contractility.

Differentiation between the obstructive and degenerative factors

in a given case should naturally precede operative measures. At present such differential diagnosis cannot always be accurate; the subject of pronounced sclerosis exhibits rigid arteries, polyuria, and often hæmaturia (Guyon); his prostate is extremely hard; the flow of urine through the catheter is feeble; complete evacuation of the bladder is accomplished only by pressure upon the hypogastrium. In the presence of these symptoms restoration of voluntary micturition cannot be expected; the radical operation is useless except to facilitate difficult catheterism.

Of the four routes by which prostatic obstacles to urination have been attacked, the urethra (Mercier, Bottini), perineal incisions (Harrison, Keyes), supra-pubic cystotomy (Dittel, Belfield, Kümmell, McGill), combined perineal and supra-pubic incisions (M. Schmidt, Belfield)—*supra-pubic cystotomy* seemed at first to fulfil every requirement; it secures minute exploration of the entire vesical surface of the prostate, the easy recognition and complete removal of the intra-vesical projections, and thorough drainage of the bladder. Prostatectomy by this incision has been performed over eighty times with satisfaction to the operator and often with results most gratifying to the patient. Yet in several instances this operation has failed to detect or to remove the prostatic obstruction; failures which direct attention to the fact—rather obscured by the many brilliant successes in removing intra-vesical growths—that the object is to restore a low-level channel through the prostate, and not simply the excision of salient tumours. To this end exploration of the urethral is quite as important as that of the vesical surface of the prostate. For the canal may be distorted by growths imperceptible or inaccessible from the bladder; especially frequent is a pronounced thickening of the suburethral prostate, whereby the urethra is elongated and the vesical orifice displaced upward. In five cases recorded in the table such a mass has baffled the surgeon who approached it by supra-pubic incision; in two (McGill) it could not be satisfactorily removed; in a third (Guyon) the partial removal was insufficient to restore the channel; in the remaining two this obstruction was overcome by perineal incision and stretching (Schmidt, Belfield).

It seems, therefore, that by supra-pubic incision alone the surgeon may find himself unable to restore the patency of the urethral channel; that the intra-vesical projections may in a given case constitute but a part of the prostatic obstruction; that the discovery and removal of such outgrowths are not necessarily a complete operation. The prostatic urethra should be stretched and explored by the finger; and the discovery of a hard mass or an unduly rigid ring should be the signal for perineal urethrotomy, incision or excision of the resisting tissue, and thorough stretching. It seems probable that the combined operation by both supra-pubic and perineal incisions will become the rule rather than the ex-

ception; the addition of the *boutonnière* increases but slightly the injury to tissue and the time of anæsthesia, while it affords an access to the entire prostate which may convert an utter failure into a complete success.—*American Journal of the Medical Sciences, Nov.* 1890, *p.* 440.

[See *Synopsis* of this volume of the *Retrospect* for articles on the "Technique," and "Results of Supra-pubic Prostatectomy."]

63.—ON THE TECHNIQUE OF PERINEAL SECTION.

By J. William White, M.D., Professor of Surgery in the University of Pennsylvania.

In the presence of retention of urine from recent rupture of the urethra in which catheterism is impossible, there can be no doubt as to the proper procedure. Immediate perineal section is so obviously the only operation which meets all the indications that no other can be seriously considered.

In mild cases of rupture, i.e., in those where after such an injury there is an appearance of blood at the meatus, with difficult urination, or with retention, but with no evidence of extravasation, or no general alarming symptoms, and in which catheterization is easy, the surgeon may be content with regular evacuation of the bladder by means of a soft instrument, well greased with carbolized oil, and with prescribing absolute rest, the patient being carefully watched for the onset of fever or the appearance of local swelling. In cases of a more severe type, in which, in addition to urethrorrhagia and retention of urine, there are evidences of extravasation, and in which catheterism, though difficult, is possible, it is wisest to leave a full-sized catheter in the bladder, and at the same time freely to lay open the perineum and scrotal tissues, or any which have been involved in the extravasation.

In the cases of greater gravity, however, where no instrument can be passed into the bladder, perineal section is, as I have said, imperatively indicated. The steps of the procedure are obvious and beyond dispute except as to a few points; which I may mention *seriatim*:

1. If persevering search fails to reveal the proximal end of the torn urethra, are suprapubic cystotomy and retrograde catheterization justifiable? I am inclined to answer this affirmatively, though such failure should be most exceptional. If the bladder contains urine, and particularly if it is distended, pressure at the hypogastrium or bimanual pressure with the fingers of one hand on the abdomen and of the other in the rectum as recommended by Dr. Bangs will often cause a jet of urine to issue from the proximal end, and will at once disclose its situation. Hæmostasis in the whole wound by very hot water will sometimes reveal the urethra by emphasizing the difference between its colour and

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that of the surrounding parts, the urethra generally showing much paler. The relation to the pubis and to the lower edge of the triangular ligament should be most carefully borne in mind, the search for the torn end in ruptures and for the portion behind the stricture in these cases being frequently carried too near the pubes. The membranous urethra in the adult usually runs through the ligament about one inch below the symphysis and about three-quarters of an inch above the perineal centre. All guides, however, fail occasionally in certain of these cases, and it is then that suprapubic cystotomy is warranted as an operation with so small a mortality that the slight additional risk is far outweighed by the advantage to the patient of having even an imperfect restoration of his urethral canal.

Retrograde catheterization was practised for the first time in 1757, by Verguin, a surgeon of Toulouse, who passed a catheter into the urethra through a pre-existent fistula of the bladder consecutive to suprapubic puncture. Since which time a number of surgeons have had recourse to this procedure, and Sédillot formerly expressed the opinion, "that in the absence of a pre-existent fistula, if, in the course of an external urethrotomy, undertaken for an impassable stricture, it were found impossible to discover the posterior end, the surgeon would be justified in doing a suprapubic cystotomy at once, in order to practise retrograde catheterization.

2. Although some differences of opinion exist as to the value of a retained catheter after most perineal operations opening the urinary tract, there can be no question of its value in cases of rupture, and I believe that it is of great use in *all* forms of perineal operation opening any portion of the urinary tract. If Spence's caution is observed, and it is not allowed to project too far into the bladder, if it is kept clean and sweet by regular antiseptic injections, it is of the utmost advantage in aiding in the prevention of urethral fever, as has been shown by Keyes, Harrison, Diday, Shield, Hill, and many others.

3. After the introduction of the catheter in cases of rupture, is there definite advantage to be derived from urethral sutures? The surgeon has four plans open to him: *a*, To leave the wound open without any attempt at coaptation; *b*, to suture the urethra only; *c*, to suture only the perineum; *d*, to suture the urethra at one place and the perineum at another. The experiences of Guyon, Championnière, Le Dentu, Molière (de Lyon), Erasme, Kaufmann, of Zurich, Tenier, C. H. Mastin, Marmaduke Shield, and myself would seem to justify the employment of sutures of the urethra. By the introduction and retention of a large catheter, and the careful coaptation of the torn ends, we meet all the indications, which are: 1st. To open a large passage for the accumulating fluids; 2nd, to keep up a free flow of urine; 3rd, to

encourage rapid union of the two ends of the urethra and the walls of the cavity formed by the extravasation into the perineum; 4th, to prevent the formation of a cicatricial stricture of the urethra. My results by these methods have thus far been so extremely satisfactory that I shall certainly continue their employment.

4. The sterilization of the urine by boric acid, as recommended by Palmer and others, or by salol following the method of Dreyfous and Lane, is of great importance in the after-treatment of all these cases, and should never be omitted. These remedies will be more effective in my judgment if combined with full doses of quinine.

In all cases in which perineal section is performed for impassable stricture, without other complications, the method of Mr. Wheelhouse, of Leeds, seems to me to meet every indication. The passage of the staff to the stricture shows the exact site of the latter; the insertion of the threads into the divided urethra, serves not only to hold it open and give an opportunity for the discovery of the proximal portion, but also seems to fix the anterior end, and render it easily recognizable during the operation. The least useful direction which Mr. Wheelhouse gives is that of turning the staff with the concavity of the curve upward, so as to hook it into the upper portion of the urethral wound. The instrument is sometimes in the way, has to be held by an assistant, and it seems to me does not afford much help during the operation.—*American Journal of the Medical Sciences, Jan.* 1891, *p.* 33.

64.—ON SUPRAPUBIC LITHOTOMY WITH IMMEDIATE SUTURE OF THE BLADDER.

By A. W. Mayo Robson, F.R.C.S., Surg. to the Leeds Infirmary.

[Mr. Mayo Robson's paper contains the brief records of 18 cases of Suprapubic Lithotomy, 10 with immediate suture of the bladder, 8 with drainage, and 8 with prostatectomy. He says:]

Although suprapubic lithotomy cannot be compared with the lateral operation in rapidity and brilliancy, to my mind it presents so many advantages, that in all cases of stone unsuitable for lithotrity, I employ it in preference to any other.

The following consecutive series of 18 cases without a death, in patients whose ages varied from 2 to 71 years, will serve to support my argument; but it is also necessary that I should give some grounds for my belief:—*a.* The operation can be carried out with scientific accuracy and certainty; the anatomical relations of the parts varying so little that with ordinary care there is no danger of making a mistake. *b.* It can be performed with safety by surgeons who have only occasionally to perform lithotomy. *c.* It is the only operation universally applicable to every size of stone. *d.* It can be performed antiseptically, and the parts can be

kept aseptic. *e.* In old subjects, the interior of the bladder can be thoroughly explored, and if necessary an enlarged middle lobe of the prostate can be removed at the same time. *f.* In a sacculated bladder, it is the only method by which the bladder can with certainty be cleared. *g.* In a healthy bladder, the vesical wound can be closed with certainty and safety, and where the bladder is not healthy, or where for some reason or other it is not thought desirable to close it at once, drainage can be employed.

The only disadvantages—of its taking rather longer and giving a little more trouble—are not of much moment in these days, when anæsthetics and detail in surgery are the rule.

The details of the operation are so well known that it is unnecessary in a paper of this kind to enter into them, except to mention any slight variation from the ordinary course. If there be cystitis, I wash out the bladder with a warm solution of boracic acid ($\frac{1}{2}$ ounce to a pint) before beginning the operation. After drawing off the urine, the catheter is retained until the rectal bag is introduced and distended, as otherwise it may be difficult to insert a catheter after the rectal bag is full.

In distending the rectal bag, which is introduced by someone not otherwise helping in the operation, I usually inject about 3 ounces of water in young children, and 8 to 10 ounces in adults, using less at times, but very seldom exceeding that amount, thus avoiding the dangers of over-distension; moreover, as pointed out by Dr. Garson, to inject a large amount into the rectum defeats the object for which it is introduced, namely, the making prominent the bladder. As regards distending the bladder, I am guided by circumstances as to the amount, being content when I can feel the rounded outline of the bladder between the pubes and the umbilicus; usually I inject about 5 ounces in children, and 10 to 15 ounces in adults. Boracic solution is invariably used. After the bladder is distended the catheter is withdrawn and a piece of tape tied round the penis to prevent the fluid returning.

With regard to suturing the bladder, I believe my first case, which was operated on in 1886, and shown to the members of the Leeds and West Riding Medico-Chirurgical Society, was one of the earliest cases in which the bladder was sutured after the operation of suprapubic lithotomy; and in that case the patient was up and well at the end of the week, the catheter never being employed after the operation.

Ten of the series were treated by immediate suture of the bladder, and out of this number in only one did the sutures give way. In this case the bladder was so deep as to be almost out of reach of the finger, and the wound was closed imperfectly, but the drainage tube, placed between the edges of the linea alba, effectually prevented extravasation. This case was the only one in which the catheter was employed after suturing the bladder.

The sutures I employed were No. 00 chromicised catgut, which were passed through the outer coats of the bladder, avoiding the mucous membrane. The continuous suture was not employed. It simplifies the manipulations if a temporary suture be passed through the outer tissues of the bladder on each side of the intended incision before it is opened; the edges of the wound in the empty bladder can then be brought up close to external wound. The patient is encouraged to pass his urine afterwards unaided by the catheter, and, as a rule, there is no difficulty.

In certain cases I have felt so confident of the vesical incision being efficiently secured, and of the whole wound being aseptic, that I have not thought it necessary to leave a drainage tube in the superficial incision, but, as a rule, I consider it a wise precaution to introduce a small tube superficially. Immediate suture of the bladder is especially applicable, and is very easy in young adults and children, and in thin persons generally. Where there is an accumulation of fat in the abdominal walls it is feasible but more difficult to accomplish, since the bladder is a long way from the surface.

The bladder should not be sutured in cases of cystitis or where the edges of the vesical wound are bruised, as in the extraction of a very large stone or in the manipulations necessary for the removal of an enlarged prostate. After draining the bladder, it hastens recovery and promotes the healing of the wound to allow the patient to get out of bed as early as is consistent with his general condition—often at the end of the first or in the second week—and then the edges of the abdominal wound can be drawn together with strapping.—*British Med. Journal, Oct.* 11, *p.* 841.

65.—ON AN OPERATION FOR VESICO-VAGINAL FISTULA THROUGH A SUPRA-PUBIC OPENING IN THE BLADDER.

By (the late) A. F. McGill, F.R.C.S., Surg. to the Leeds Infirmary.

An operation for vesico-vaginal fistula through a supra-pubic wound in the bladder was first suggested by Professor Trendelenberg. I have operated in this way twice. The first case was one of epithelioma, involving the floor of the urethra for its whole length, as well as part of the anterior vaginal wall and base of the bladder. The opening made in removing the growth was so large that, though I succeeded in bringing the edges of the hole which I had formed into apposition, the wound subsequently gaped, and a large vesico-vaginal fistula resulted. The chief interest in this case lies in the fact that in five weeks, without further treatment, owing to the efficient supra-pubic drainage, the fistula entirely and spontaneously closed. The second case was an ordinary one following labour, in which the operation was perfectly satisfactory.

Case 1.—E. S., aged fifty, was admitted into the Leeds Infir-

mary under my care on Sept. 19th, 1889, suffering from retention of urine. For twenty-seven years she had taken laudanum (about an ounce and a half daily). Her health was good, and she had no urinary symptoms till five months before admission; she then noticed that she had difficulty in passing urine, that micturition was accompanied by pain, and that occasionally the urine was tinged with blood. The symptoms gradually increased in severity, till seven days previously she had complete retention; she has not been able to pass any urine, but has been relieved by a dribbling overflow. On admission, the bladder was found to be much distended. There was a hard, nodular mass, which extended from the urinary meatus on to the anterior vaginal wall; it involved the floor of the urethra and extended on to the base of the bladder. A female catheter was introduced with some difficulty, and several pints of urine were evacuated. The retention recurred. She was only relieved by frequent catheterism, and this caused much pain and some hemorrhage. It was consequently determined to operate by removing the growth closing the vesico-vaginal fistula thus formed, and leaving a supra-pubic opening. On Sept. 27th, the pubes having been shaved, the patient, who was a very thin woman, was placed in the inverted position by hanging her by her knees to a crossbar attached to an operating table and supporting her loins by pillows. Her head was placed towards a window, the full light of which consequently fell on the abdomen. The bladder was now distended with twelve ounces of a boracic acid solution. A transverse incision, about half an inch above the pubes and three inches in length, was made; this divided both skin and recti muscles. The bladder was exposed, fixed by a tenaculum and opened transversely; it was fixed to the deep part of the abdominal wall, and thus prevented from falling into the pelvis, by three sutures. The patient was next placed in the lithotomy position, and a duckbill speculum introduced into the vagina. The growth, pressed down by the fingers of an assistant passed through the supra-pubic wound, was removed by scalpel and scissors. It was more extensive than was expected. The lower two-thirds of the circumference of the urethra, as well as part of the base of the bladder, was implicated, and when the removal was complete, an opening, which would easily admit two fingers, had been made. This opening was closed by fine silk sutures passed through the vaginal wall. The edges were with difficulty brought together, and there was much tension on the stitches. The patient was now replaced in the inverted position, and the opening in the mucous membrane of the bladder was closed by fine catgut sutures. Lastly, the supra-pubic wound in the bladder was closed at each end, an opening being left large enough to admit a drainage-tube; the recti muscles were stitched together and the skin wound closed except at the centre. On injecting the bladder, it was found that the

opening into the vagina was watertight. The pathological report made it certain that the growth was a squamous epithelioma. The subsequent history was as follows. On examination at the end of a week, it was found that the posterior part of the bladder wound had not united, and that a vesico-vaginal fistula, through which a finger could be passed, existed. The supra-pubic wound closed slowly, and the opening into the bladder was kept patent by a tube introduced at intervals. The bladder and vagina were irrigated twice daily through the supra-pubic opening with boracic solution. On Nov. 3rd, thirty-seven days after the operation, the opening between the bladder and vagina was completely healed, and all urine escaped by the supra-pubic wound. The patient was fitted with a urinal and sent to our convalescent home. On Jan. 4th, 1890, she returned to the infirmary, when it was found that urine still escaped by the side of the urinal tube. There was no recurrence of the growth. On Jan. 18th she was sent home.

Case 2.—E. A. W., aged seventeen, was admitted into the Leeds Infirmary under the care of Dr. Braithwaite on Jan. 3rd, 1890. Knowing that I was interested in the subject, Dr. Braithwaite kindly transferred her to me. She was delivered by forceps on Nov. 23rd, 1889, after having been forty-eight hours in labour. Since then all urine has passed by the vagina. On examination the perineum was found to be lacerated to the anus. There was a vesico-vaginal fistula large enough to admit the tip of the index-finger situated immediately in front of the os uteri. On Jan. 11th the patient was placed in the inverted position and the bladder opened transversely and fixed to the abdominal wall, as described in the previous case. It was necessarily impossible to distend the bladder. A copper spatula was introduced into the bladder and its superior wall pressed upwards. A small electric light was placed in the bladder against the spatula and the whole of its interior and the fistula were perfectly illuminated. The fistula being fixed and pressed upwards by two fingers of an assistant introduced into the vagina, the edges were refreshed with great facility. Four chromicised catgut sutures were passed through the mucous membrane and the fistula thus completely closed. As a further safeguard the patient was placed in the lithotomy position and four fine silk sutures were inserted, including all tissues except the bladder mucous membrane. The supra-pubic wound was closed in three layers, bladder, muscles, and skin, an opening for a drainage-tube being left in the middle line. The after-progress was in every way satisfactory. On the fifth day the tube was removed, on the eighth she passed a little urine by the urethra, and at the end of a fortnight the vaginal sutures were removed. In less than a month the supra-pubic wound was completely healed, and on Feb. 13th she returned home passing urine naturally, and perfectly restored.

The operation which I have described above may, I think, be

somewhat modified with advantage. I suggest that it be practised as follows:—1. The patient is placed in the inverted position. As the bladder cannot be distended, and as the rectal bag would be of little, if any, use, it is advisable that the peritoneum be removed as far as possible from the pubes. This is best effected by the position adopted. In this position a side light best illuminates the interior of the bladder, or an electric light can be used with most advantage, and thus the subsequent steps of the operation can be carried out with ease and facility. 2. In the two cases which I have described I made, as Trendelenberg advises, a transverse incision. In future I intend making a longitudinal incision through the skin and linea alba, and opening the bladder in the same direction. If necessary, it will be easy to partially divide the recti, and thus obtain more room. It is true that with this longitudinal incision the view obtained of the interior of the bladder is not quite so good, and that manipulation in its interior is not so easy. On the other hand, my experience of eleven cases of transverse supra-pubic cystotomy has shown me that healing is, as a rule, much slower with a transverse than with a longitudinal incision. In cases like the one first related, where a supra-pubic urinal must be worn, the transverse incision is certainly inadmissible. The recti, if undivided, form a sort of sphincter and grip the tube introduced into the bladder, thus preventing the escape of urine by its side. If these muscles are divided urine will escape by the side of the tube, thus making the urinal comparatively useless. These remarks apply not only to cases of vesico-vaginal fistula, but to all cases of supra-pubic cystotomy. 3. The bladder must be fixed by sutures to the deeper layers of the abdominal wall. These are easily introduced by large corkscrew needles in handles. The long ends of the sutures are not removed till the operation is finished. They prevent the bladder from being displaced from the abdominal wall, and they serve the purpose of retractors, opening the wound and facilitating a view of its interior. If expedient, a metal spatula may be introduced and used as a retractor with advantage. 4. The edges of the fistula are refreshed, care being taken to remove a complete ring of vesical mucous membrane, and of the bladder and vaginal walls. 5. Fine catgut sutures are passed through the mucous membrane from above, and the patient being placed in the lithotomy position silk sutures are introduced through the vaginal wall from below. In this way the fistula is completely closed by a double row of stitches. 6. The supra-pubic wound in the bladder and in the abdominal wall is partially closed, room being left in the middle line for the introduction of a large rubber tube. Supra-pubic drainage must be maintained till the fistula is firmly closed. It is this drainage which is the important factor in this operation. As the bladder cannot become distended, there will be no tension on the sutures which bring the edges of the fistula into

apposition, and no tendency for the urine to become infiltrated into the wound. The cystitis which is apt to occur when a catheter is frequently passed or tied in the bladder will not be likely to occur, and if necessary the cavity of the bladder can be kept clean by free irrigation with a weak antiseptic solution. It may consequently be expected that in most cases the operation for the relief of vesico-vaginal fistula following labour will be successful at the first attempt. Case 1 makes me hope that cure may result even in the worst cases, for it shows that a large fistula will close without further treatment if the urine can escape freely through a supra-pubic opening.

In conclusion, it may be asked, Is there any need for this operation? My experience may be unfortunate, but I have seldom seen a vesico-vaginal fistula closed at one sitting. A small opening is not unfrequently left, and the discomfort of the patient is the same whether the opening is small or large. Not unfrequently the operation must be repeated several times before a perfect result is obtained. I have seen other cases in which repeated operation has failed to give relief. When this occurs the supra-pubic operation should undoubtedly be tried. My small experience does not warrant me in expressing an opinion as to whether it should be adopted in more favourable cases.—*Lancet, Nov.* 8, *p.* 966.

66.—THE INFLUENCE OF ELECTRIC ILLUMINATION OF THE BLADDER UPON OUR KNOWLEDGE AND TREATMENT OF URINARY DISEASE.

By E. Hurry Fenwick, F.R.C.S., Surg. to the London Hospital.

The grounds upon which the conclusions here given were based consisted in the systematic cystoscopic examination of large numbers of healthy bladders; of 100 patients suffering from profuse hæmaturia; of 30 cases of tuberculous or scrofulous ulceration of the bladder; of 32 cases of vesical tumour, besides many other cases of obscure reno-vesical diseases, such as pyelitic inflammations, encysted calculi, sacculated bladders, pseudo-prostatic obstructions, &c. These examinations were in some patients controlled by digital exploration or operation, and in 7 instances (in the section of vesical carcinoma) by post-mortem investigation.

Before any conclusions were submitted for criticism it was considered essential to bring forward evidence that accuracy in diagnosis, and often also in the prognosis of obscure bladder disease, could be obtained by means of the cystoscope in an early stage of the disorder. To this end all the necropsies which had been secured in the series were cited, and the specimens demonstrated. The specimens belonged to the section of vesical cancer, and each was accompanied by the diagnosis and prognosis which had been made cystoscopically, and which had been written or printed

months before the demise of the patient. These few post-mortem criticisms of cystoscopic diagnoses and prognoses proved that electric cystoscopy was an accurate and important factor in the scientific treatment of obscure bladder disease.

Some of the conclusions were as follows:—

Surgical Renal Disease.—The dangers of performing nephrectomy without investigation of the presence and working capacity of the companion gland are recognised, but the difficulties of obtaining any correct estimate of the renal power which will remain after ablation of the diseased organ are avowedly great. Cystoscopy of the ureteral orifices removes much of the difficulty. The efflux establishes at once the presence of a working kidney. The sluggishness or rapidity with which the jets succeed each other marks the absence or presence of irritation in the pelvis, a slow or active secretion. The colour of the jet, whether it be clear, muddy, or bloody, testifies to the normal or abnormal condition of the secretion. The ureteral orifice, moreover, becomes implicated by descending changes from the pelvis of the kidney. The shape and appearance, therefore, of its orifice are not infrequently an index to the change in the corresponding pelvis and ureter. More especially is this the case in scrofulosis. As yet the catheterism of the male ureter under electric light is too difficult to be practical.

Bladder Conformation.—A natural ledge formed by the interureteral bar—the base line of the trigone—is often strikingly developed even in healthy bladders. The weakest part of the bladder is apparently immediately behind this line, for in those who have had to overcome even a slight obstruction in urination there is more or less of a gutter-shaped depression of the entire wall. Behind this ledge and in this gutter may be seen the smaller stones. Fasciculation and dimpling are not uncommon in healthy bladders. Figure-of-8 shaped or cottage-loaf shaped bladders are rare, but are sometimes met with; these brace the stone on to the pubes.

Calculi.—Stones in the bladder may be sometimes missed on sounding from a variety of causes which are demonstrable by the cystoscope. A small stone can be completely or partially engulfed by the approximated swollen folds of chronically inflamed mucous membrane. These folds can be seen in bladders which contain at the time of examination 4 ounces; when the bladder is distended to 8 ounces or 10 ounces the stones drop on to the base. Medium-sized stones (1 to 2 drachms in weight) are often lodged behind the interureteral bar, and may be seen partially sunk in heaped-up swollen mucous membrane. Some stones are seen completely covered with flocculent mucus or with blood clot. All such may be overlooked in sounding on account of the circum- or super-jacent soft material. Stones in pouches (sacculated stones) are rare. They are missed for these reasons: (1) the

orifice of the sac is narrowed in incomplete distension; (2) superadded to this the orifice is further narrowed because the mucous membrane lining the mouth is often greatly swollen and gelatinous with inflammation. These sacs are usually near the ureteral orifices. It is therefore recommended that bladders be well distended, after the chronic swelling has been reduced, before being sounded.

Ulceration.—It is perhaps hardly realised by the profession that a very large proportion of cases of obscure pains in the perineum and penis, accompanied by hæmaturia, are ulcerations of the posterior wall of the bladder. I have known such ulceration last for years without extending. Not infrequently they are covered with lime phosphate. It is more than probable these were the cases encountered by Sir Henry Thompson, and reported by him as "digital exploration. Nothing found except a scale of phosphatic matter adherent to bladder." Such cases are greatly benefited by lactic acid injections, 1 per cent. to 4 per cent., given daily, or by scraping. It might be supposed that pellucid urine would exclude the presence of ulcerations of the bladder. This is not always so. I have seen deep ulcers with perfectly clear urine. There is a near connection between these ulcerations and tuberculosis. Such ulcerations are easier seen than felt.

Tuberculosis.—The straining, frequency, and pain observed in tubercular renal affections are not always due, as is taught, to reflex conditions. In many cases such symptoms are explained by great swelling of the mucous membrane around the orifice of the bladder impeding the outflow of the urine. This may be caused by the direct irritation of the urine or by the implication of the subjacent prostate. The bladder appears to be most often the origin of urinary tuberculosis.

Tumours.—Carcinomata are the most common. Villous papillomata are rarer. Pedunculation is not a criterion of the nature of the tumour. Although only 3 per cent. of museum carcinomata are pedicled, yet in the early stages of the softer forms of bladder cancerous tumours, pedunculation, or subsessility is not uncommon. It is, perhaps, relatively commoner in female bladders. This being so, the earlier the examination and operation are undertaken the greater the chance of the successful removal of pedicled carcinomata. Very many carcinomata have shreddy necrotic surfaces, which may be mistaken for villous growths. The onset symptom is, in a large majority of cases, a hæmaturia. This has no relation to benignancy or malignancy, but depends upon the delicate texture of the growth. The appearance of the blood does not mark the birth of a growth, but is due to some traumatism of a pre-existing tumour or degenerative surface change.

The frequency of micturition and pain in vesical neoplasms depends usually, in the earlier stages, on part of the growth floating into the urethral orifice and plugging the outlet; thus

atony and residual urine are not uncommon in all forms of vesical growth. The oscillations in the severity of the symptoms of a patient suffering from vesical growth are due (as in ulceration and stone) to transient flushes of localised cystitis.

A prognosis depends mainly upon the amount of implication of the wall of the bladder, also upon the position of the primary growth, whether it be on the posterior wall or near one of the three orifices of the bladder. In the latter positions the disease kills quickly; those situated on the posterior wall take about two years for completion. The most common situation for primary growth is in the neighbourhood of the ureteral orifices. Much needless operative interference can be prevented by the cystoscopy of bladder tumours, and the best method for attacking the growth (the choice of the suprapubic or perineal routes) is settled also by such an examination.—*British Medical Journal, Oct.* 18, *p.* 894.

AFFECTIONS OF THE SKIN, ETC.

67.—ON THE CHARACTERISTICS AND TREATMENT OF DERMATITIS HERPETIFORMIS.

By W. Allan Jamieson, M.D., Extra Physician for Diseases of the Skin, Royal Infirmary, Edinburgh.

The definition of this disease formulated by Unna is perhaps as good a one as is at present available in the existing state of our knowledge. Dermatitis herpetiformis is, according to this, "a chronic, sometimes an acute, neurosis of the skin, not markedly interfering with the general health. This causes a more or less universal eruption, associated with burning and itching sensations, and regularly recurring after intervals of complete or comparative immunity. The type is erythemato-bullous, which, however, may undergo considerable modification."

There are four features characteristic of the complaint: 1. The polymorphic nature of the eruption. 2. The paræsthesiæ which accompany it. 3. Its course, in the main chronic, exhibiting a decided tendency to relapse or recur. 4. The relatively good state of the general health. All these need careful consideration.

1. The polymorphic nature of the eruption. This is twofold. In each case there are two, sometimes more forms of primary or secondary eruption present at the same time; and again, the characters of the eruption may vary in successive outbreaks. The type has been defined as erythemato-bullous. Erythematous blotches or flat papules are always to be found at some, usually an early, stage, and as a rule make up the bulk of the lesions, but vesicles, bullæ, or pustules may one or all be met with in association with blotches or flat papules. The erythematous patches are in themselves commonly pretty well defined. Now and then they

resemble the wheals in urticaria, and this peculiarity is occasionally specially marked in the case of children. In some instances the vesicles develop on the erythema or papule, in others the vesicle or bulla—which latter may be of large size—is marginal or quite distinct from the erythema. The primary pustular form is certainly the more rare, its occurrence may be due to the general health being much lowered, but it may also be explained, as Unna thinks, by the invasion of pyogenic organisms. The vesicles are not limited to the skin, they have been seen on the mucous membranes, as inside the mouth. One distinctive character must be noted, that the lesions are grouped, herpetiform, not isolated. The crusts or hard flat scabs which succeed the vesicles are peculiar. They are somewhat angular in shape, are hard, dry, and brown. In one variety the face, neck, hands, and exposed parts are primarily at least, and in most cases solely, attacked. In others the eruption shows a partiality for the neighbourhood of the articulations, and for covered portions of the body, but while it starts from these localities, it may extend widely. The form which is limited to exposed parts, as a rule commences in early childhood, while the other and more common of the varieties may begin at any period of life. The first mentioned form leaves scars which may be extensive, the ears in particular suffering, and the cicatrices so produced prone to contract and occasion disfigurement. In the milder type blotches or stains, pigmentation, leucoderma, or even minute white glancing scars, represent the conditions seen in some persons on the subsidence of the more acute symptoms, or, when the eruption has vacated one part to attack another, such changes are left, temporarily at least, in its wake.

2. The paræsthesiæ which accompany it. Itching is complained of in all those cases where the covered parts of the body are affected. The itching is usually intense and distressing, but it is not constant, it is apt to become aggravated at times. Before, or concurrent with the eruption of a fresh crop of lesions, itching is a prominent symptom, but when the vesicles have formed or the papules have risen, the itching becomes less in degree, to awake again with the formation of another batch of blotches or the appearance of new blisters. In the form which attacks the face, ears, and hands, pain or burning sensations in these parts precede each exacerbation. Since in these cases the disease is usually quiescent during the winter months, there is then a period of freedom from subjective impressions, which, however, manifest themselves as the complaint reasserts itself in spring or early summer.

3. Its course, in the main chronic, exhibiting a decided tendency to relapse or recur. Unna regards this as the most important symptom of the disease, and until these features have manifested themselves unmistakably, he would reserve his diagnosis. This, however, necessitates the introduction of the element of time, and

while such may render our opinion a more precise one, there are cases which can be identified before this has fully declared itself. Some authors, as Brocq, speak of an acute form. An example of this kind has been put on record by Hautecoeur, but this refers more to the rapidity with which the lesions themselves evolve than to the absence of recurrences. Chronicity, indeed, may be conceded as essential, while fluctuations in intensity, relapses, or true recrudescences are parts of the ailment. Such may finally terminate or be indefinitely absent.

4. The relatively good state of the general health. Considering the extent of surface involved and the severe itching, rendering sleep unrefreshing, the maintenance of health of a fairly high standard is remarkable. Still, some patients complain of weakness —so much so, indeed, as to necessitate their taking to bed. There is sleeplessness and emaciation, or at least some loss of flesh. One symptom is pretty constant, though its cause is obscure, this is the occurrence of diarrhœa. More males than females are affected in the generalized form; that localized to the face, hands, and exposed parts has so far only been seen in males. The duration is quite undetermined in the generalized form. The localized ceases or much lessens in severity about or before the twentieth year.

Many authors now include those cases which have been described under the term herpes gestationis as a part of dermatitis herpetiformis, the circumstances of the patient modifying a little the features displayed. The eruption may appear either during pregnancy, usually not earlier than the tenth week, and may continue more or less well marked till delivery or even till lactation is established. In this case there is often a fresh outbreak or an intensification of the complaint shortly after delivery. Or it may not manifest itself till some days after the confinement, and may last for one, two, or even three months as a series of outbreaks, each of these being preceded, in nearly every instance, by itching sensations. It is liable to recur in successive pregnancies, but there are cases on record in which a mother has escaped an attack in some while she suffered in others. It is apt, however, to increase in intensity and extent at every fresh recurrence.

This form of dermatitis herpetiformis starts on the limbs, in particular on the hands and arms, though it occasionally first appears near the umbilicus. The lesions resemble those described, pustules are rare, unless the transformation of the vesicles into pus be regarded as such. The general health and the appetite remain good, even though, as Brocq remarks, those affected are fatigued or even prostrate. Sometimes the relish for food fails at the commencement of a seizure, but is regained though the complaint persist.

The treatment cannot be said to be yet satisfactory. In some cases baths of potassa sulphurata, two ounces in thirty gallons, with the addition of two or three pints of freshly made starch,

and taken for a quarter of an hour at a temperature of from 95° to 98° at night, have certainly afforded much comfort, but in other cases, particularly if the heat named has been exceeded, have seemed to intensify the itching. Two applications are of value after the bath. One is the calamine lotion, to six ounces of which a drachm of boracic acid and one of carbolic acid, or of the liquor carbonis detergens, have been added. Or the following lotion, which both soothes and cools, is advantageous :—℞. Liq. calcis, Ol. sesami, ana uncias tres.; Cretæ præp., Zinci oxidi, ana semi unciam ; Acidi salicylici, drachmam unam. In several cases, more particularly in children, sulphur ointment, which may even be made as strong as three drachms in the ounce, does more good than anything.

Internally arsenic best restrains the evolution of the vesicles and bullæ, and the greatest benefit has been obtained by me from the pills of arsenious acid, one-fiftieth to one twenty-fifth of a grain thrice daily. (Dr. Jamieson's paper contains the narratives of several illustrative cases).—*Edinburgh Med. Journal, Jan., p.* 639.

68.—ON THE TREATMENT OF LUPUS.

By Jonathan Hutchinson, F.R.S., F.R.C.S., Senior Surgeon to the Hospital for Skin Diseases, Blackfriars, London.

Before proceeding to endeavour to estimate the different measures of success attending the different plans of treatment for lupus, it may be well to say a few words as to the grounds upon which such plans have been based, and to what may be reasonably expected of them. My argument has been that lupus processes of inflammation originate in persons who are locally or constitutionally of feeble cell nutrition and prone to vascular disturbance. That a parasitic bacillus attends many of them is to be freely admitted ; that its implantation constitutes the initial stage of lupus may be strongly doubted. The influence of enfeeblement of the general health, of exposure to weather and to cold as causes of the aggravation of lupus, must be admitted by all without a moment's hesitation. It is an old observation that those who live in country districts and are exposed to weather suffer more from lupus than those who dwell in towns. It is also a matter of quite general knowledge that most forms of lupus become worse in winter. Applying these facts to the development of principles of treatment, we should expect that much might be done by attending to the general health of the patient, and by protecting him from the influence of cold. Such is, I may say, undoubtedly the fact. Whatever increases the general tone does tend to restrict the lupus process and to favour the healing of its ulcers. If the patient can be allowed to remain in warm rooms during the winter, or still better, if by changes of climate

he may be enabled to enjoy summer weather all the year round, the chances of recovery from lupus will be very much increased. As regards lupus vulgaris I cannot think that it is reasonable to expect a cure, unless advantages of this kind can be obtained. In reference to these assertions I might ask attention to the results of treatment of lupus in two special classes of cases in which I think nothing even approaching a cure is ever obtained. I allude to those first, a large class, in whom lupus begins in young persons who are obviously of very feeble health; and secondly to those, a small class, in whom it begins in the aged. Senile scrofula in all its forms is less amenable to treatment than that of young persons, for it occurs at a time when the powers of life are on the wane, and when it is impossible to do anything definite in the way of their reinvigoration. On the other hand, the cases of lupus in which we do obtain cures, or in which we approach them, are those in which the disease begins in young persons or in early adult life, and is not associated with any conspicuous enfeeblement of health or of circulation.

In what has just been said I have been speaking solely of the constitutional element in lupus; but we must not forget for a moment that there is another, and even more important one—I refer of course to its locally infective tendencies. In a few cases constitutional treatment, or the improvement in health stamina which comes with advancing years, is sufficient to put an end completely to the lupus process. Examples of perfectly healthy scars without the least fragment of lupus tissue remaining, and without any tendency whatever to relapse in winter, may not infrequently be seen under these circumstances. Very often they are in patients who have suffered from the disease on several parts at once, and in whom some patches have undergone cure, whilst others have persisted. Although not very common, they are abundantly sufficient to prove the point that the lupus process may, in exceptional instances, come spontaneously to an end. In the majority of cases, however, it may be freely granted that whatever be done for the benefit of the general health it does not cure the lupus patch. The latter continues in virtue of its own infective elements to spread at its edge and to produce fresh satellites. It is here that surgery comes to our aid. By treating the lupus nodules exactly as we should those of cancer or other material known to be infective, we can do very much towards effecting a cure.

I will now pass to consider the details of the local measures which have been chiefly employed. The different measures of local treatment have all had a common object—that, namely, of getting rid of the infective material. When I was a student at York Hospital I was taught to use for this purpose a chloride of zinc paste, sparingly and thinly applied, and I have never seen

better results from any treatment than, as far as my memory serves me, we occasionally obtained from this. Its use, however, is inconvenient on some of the parts which lupus most commonly attacks—the nose, for instance. When I came to London and worked as assistant to the late Mr. Startin at the Blackfriars Hospital, we treated all our lupus patients by repeated applications of the acid nitrate of mercury and an arsenical paste. If the surface were not broken, the acid nitrate was applied; but if there was an ulcer, then it was our practice to fill it with the paste. These applications were made over and over again. Our cases were very numerous and attended frequently, and half my occupation many an afternoon consisted in making these applications. The patients always took tonics and cod-liver oil, and often, for many years together, minute doses of mercury. The results were on the whole very satisfactory, but the treatment was tedious and the perils of attendance very long. When some years later the patients at this hospital passed under my own care, and I had also at the Metropolitan Free and at the London Hospital many other cases, I tried to expedite the cure by the use of the actual cautery instead of the acid nitrate. I had cautery irons of various sizes made, and we used them, under an anæsthetic, very freely. This was long before the introduction of M. Paquelin's ingenious little instrument, and at that time we used to heat our irons in the fire. At the time I thought this method, as regards expedition, a great improvement, and wrote strongly in its favour. I recollect that my friend Dr. McCall Anderson, of Glasgow, also took it up, giving figures of my cautery irons. Somewhat later Mr. John Gay made the radical proposal that lupus nodules should be cut out with the knife and treated exactly as we would those of cancer, but unfortunately the inapplicability of this excepting to a small number of cases was only too obvious. You could not cut away the greater part of a man's nose or cheeks. Later still came the introduction of the process of erasion by means of Volckmann's scoops. This attained a very wide popularity, and it is indeed a very efficient method. The general verdict would, I think, appear to be in its favour over all other methods of local destruction. For myself, I may admit that I doubt if it possess any advantages over the use of the actual cautery or the acid nitrate of mercury. I was accustomed some years ago to use it frequently, but I find myself now falling back more and more on the older methods. Instead of the arsenical paste which Mr. Startin employed so much (Dupuytren's paste), I now use the liquor arsenicalis. The latter may be painted on with a camel-hair pencil, and if the surface be not too large the patient may be trusted to do it himself. It does not perhaps matter so much which of the several methods of getting rid of the lupus tissue we adopt, provided we do it very

freely, and repeat it as often as is necessary. I have a decided impression, however, that the sores left after the acid nitrate or the actual cautery heal better than after the scoop. In many instances undiluted carbolic acid, freely and repeatedly applied, is very efficient, and it has the great advantage that, if the patient be intelligent, he may be trusted to make the applications. I am quite aware that in this sketch I have not enumerated by any means all the methods which are employed in the local treatment of lupus. There are many others, but I think that for the most part they are of the same class. I must not, however, omit to mention that Dr. Unna, of Hamburg, some years ago introduced a method by the application of plasters containing salicylic acid, which for a time obtained great favour with some well qualified to judge. I cannot speak from much personal experience regarding them, but I have formed the impression that they are not less troublesome nor more efficient than some of the other methods. In this connection it may be well to state that whatever in the nature of a plaster or other application protects a lupus patch from the influence of air and keeps it warm invariably does good. This is of especial importance in reference to lupus necrogenicus and to all lupoid affections of the extremities.

As regards the prognosis of lupus, it is at once to be candidly admitted that examples of complete and permanent cure are rare. At the same time it is to be asserted that under favourable conditions and perseverance on the part of both patient and surgeon, great improvement may be obtained, the disease kept in abeyance, and a condition secured which nearly approaches a cure. In cold weather, however, and if through any influence the state of health is lowered, relapses are almost certain to occur in almost all cases. I have recently had under my observation a lady who when young was quite cured of lupus under the old methods by the late Dr. Anthony Todd Thompson. She enjoyed thirty years of immunity, and has only now relapsed when her tissues and her circulation have become enfeebled by age.—*Medical Press and Circular, Feb.* 11, 1891, *p.* 141.

69.—ON THE RESULTS OF THE TREATMENT OF LUPUS BY KOCH'S METHOD.

By Jonathan Hutchinson, F.R.S., &c.

As all are aware, it is now about three months since this remarkable fluid—a glycerine solution of substances resulting from the pure cultivation of the tubercle bacillus—was placed in the hands of the profession. It was reputed to have the power when used by means of hypodermic injection in most minute quantities of causing the cell structures adjacent to bacillary deposits to inflame. Very soon after its introduction it was announced that the most

remarkable demonstrations of its effects were to be obtained in cases of lupus vulgaris. In these it caused the patches to inflame, and certain small fragments to undergo necrosis, and after this a process of healing set in which left the patient, if not absolutely cured, at any rate in a greatly improved condition. During the last three months trials of this remedy have been very extensively made, and I now purpose to attempt some sort of brief *résumé* of their results. I know that it will be said that it is too early to arrive at any conclusions, and, in a certain sense, this must be admitted. Very definite results have, however, on some important points been obtained, and it is highly desirable that, for the guidance of future investigators, these should be stated. My own personal experience—that is, as regards patients under my own care—has been very small, but through the kindness of many friends I have had opportunities of collecting facts over a tolerably wide field. In endeavouring to report upon them it may, I think, be stated in the first place that the original statement that the injection of Koch's fluid does cause lupus patches to inflame has been well borne out, but not without some striking exceptions. In a case under my own care, the portraits of which I have shown you, and concerning which the diagnosis of lupus vulgaris cannot come into any question, no effect whatever was produced on the patches, although the patient's temperature rose on every occasion after nine or ten successive injections. In this case Dr. Heron made the injections and examined the patient at all stages with the utmost care. I avail myself of his skill as a diagnostician in reference to diseases of the lungs to assure you that the patient had no indications of pulmonary tuberculosis which would explain the recurrence of febrile reaction. After about a month's treatment, the injections having ceased to produce fever, we laid them aside, and the patient is now exactly as he was before they were begun. I have received information concerning more than one case in which somewhat similar results were observed. In one, about which Dr. Abraham is my informant, neither febrile reaction nor local reaction resulted, although the patient displayed nodules of the apple-jelly deposit of lupus in considerable abundance. Without an exception all my friends report that in the cases in which the lupus patch has been made to inflame the results, as regards its subsequent improvement, have been very definitely good. Large areas, which had been previously swollen and covered with scab and crust, have been made to heal, and the resulting scar has been flat and sound. No one, however, ventures to report an instance of complete cure. Of the cases which have been shown to me as the most satisfactory, I am bound to say that in every one there has been evidence at some part of the edge of the remains of lupus tissue, ready, I do not doubt, to start into fresh growth on the slightest provocation. In reference to

this point I have to make a most important assertion, and that is, that the treatment does not always influence the essential element of lupus. The brown apple-jelly-like deposit which is universally acknowledged as the most characteristic of the lupus conditions sometimes remains untouched. This assertion is illustrated by a case which Dr. Heron was kind enough to show me, and in which he had practised injections some ten or twelve times. In this instance the inflammatory swelling of the parts affected had been quite got rid of and the patient considered herself very much benefited. Nodules of lupus were, however, scattered about her cheeks in a conspicuous manner, and had she come under my care without my knowing anything of the previous treatment I should certainly have regarded her as an ordinary case of lupus, still standing in need of efficient treatment by either the cautery or spoon. In the case which Dr. Gayton was kind enough to send us last week—and which had been under Mr. Watson Cheyne's treatment in King's College Hospital, and had received great benefit—you had equal opportunities with myself of judging whether it could be called a cure. The lupus edge was still there. As substantiating my statement that the treatment does not always destroy the most characteristic part of the lupus formation, I might quote from a letter from Mr. Waren Tay, of the London Hospital, who, speaking of a case in which great benefit has been obtained, remarks "that there still remain nodules which I should much like to attack with the scoop." The cases which appear to derive the greatest benefit are those in which there is most of inflammatory swelling, and in which the more specialised elements of the lupus process are least abundant. You will see the bearing of this statement. Should it be supported by future facts we shall be obliged to suspect that the remedy is, after all, one for certain conditions of the inflammatory process, and not for tuberculosis. Even in this position, however, it is possible that it may still prove of great help to us in the treatment of certain forms of lupus. I am not aware that it has yet been tried in any of the cases of what has been described as perfectly quiet lupus—such, for instance, as those of which I showed two portraits illustrating single patch lupus occurring on the cheeks of healthy persons, characterised by a thick growth of apple-jelly, and by the entire absence of any surrounding inflammation. These cases would be very suitable ones in which to test the power of the fluid in attacking the lupus growth itself; and from what I have seen thus far I quite expect that they would escape its influence. In the more rare forms of lupus the remedy has not yet been tried. On lupus erythematosus, however, a good many experiments have been made. It was foretold by those who believe that what they call "true" lupus is bacillary, and that lupus erythematosus is not so, that the fluid would have no effect on the latter; and, in the main, this prognostication has

been fulfilled. In a very marked case under my own care, and in which Dr. Heron was kind enough to carry out the treatment, the patient had good febrile reactions after repeated injections, but without any inflammation of her lupus patches. This remarkable result was perhaps explained by the supposition that the lady had tuberculosis of the lungs as well. She was, as is usual in lupus erythematosus, of a phthisical family, and she had herself been treated for suspicious symptoms. In her case, a week after we had abandoned the injections in the belief that they were doing no good, the erythematous patches on her face suddenly disappeared almost wholly. A number of discs on the upper part of the chest, however, some of which were so thick and definite that some observers were inclined to regard them as lupus vulgaris, remained wholly untouched. She had had nine or ten injections, and latterly in full doses. I have seen this patient to-day, and her face patches are already returning to their first condition.

Apart from the question of its direct influence on the lupus itself, some collateral observations of much interest have been made as to the possible results from Koch's fluid. I am told that it has repeatedly caused general erythematous eruptions on the skin, and, in some, nodular effusions into the cellular tissues. In one case the inflammation of the lupus (on the face) passed into unquestionable erysipelas of a rather severe type, and the patient was for some time in danger. In two cases, at least, during the febrile reaction old chilblains become again inflamed.

If we are obliged to report that nothing that can be called a cure of lupus has yet been obtained in London practice, it may seem unnecessary to ask whether cures are lasting. On this point, too, however, I am sorry to say that some evidence is already forthcoming. I fear it is a fact that relapses occur very quickly. The patient who was taken to Berlin by Mr. Malcolm Morris and Dr. Pringle, and was for a time supposed to be almost cured, is now, I am assured by both the gentlemen concerned, in a condition almost as bad as before the treatment.

If, on the whole, we are obliged to return a qualified verdict as regards this method of treatment in London, it by no means follows that it may not in the future be put to some use. On the contrary, it has in many cases done very great good, and no one can doubt that the fluid possesses very remarkable powers. It may be that in the future we shall learn to combine the older methods of destruction of the lupus deposit by means of cautery or caustic with suppression of the attendant inflammation by injections. What I have seen would certainly lead to the belief that some patients are by the injections brought into a condition much more favourable for surgical treatment than they were before. We are doing our best to elucidate one of the most important pathological questions of the day.—*Medical Press and Cir., Feb.* 11, 1891, *p.* 142.

70.—ON A CASE OF PSOROSPERMOSIS FOLLICULARIS CUTIS, WITH REMARKS.

By L. Duncan Bulkley, M.D., New York.

M. L., aged forty-nine years, enjoyed good health up to 1862. About a year after, without any apparent cause, except an immersion in a river, after which he was sick for some time, small dark lesions appeared upon the forehead and over the sternum; and from that time, twenty-six years ago, he has never been free from the eruption, which has gradually increased in extent. These lesions began as small, reddish-brown points, or papules, which gradually enlarged, and gave a rough feeling on passing the finger over them; where they were most numerous they coalesced to a greater or less extent, forming patches of a dirty yellowish-brown colour. The increase of the eruption has been gradual, but at times more rapid, especially in the spring and fall, when he has fever, with pains in the bones (which may be malarial) confining him to bed; at these times the affected portions become swollen and red, and, he states, have been mistaken for erysipelas. He cannot tell the date at which the various portions of the body became affected, but remembers that the forearms and backs of the hands were attacked about fourteen years ago.

His present condition is not very good. He has an anxious, careworn expression, and says that he is so nervous and weak that he cannot attend to any business. The skin lesions extend from the top of the head to the groins and upper thighs. The top of the head, which is bald, is almost covered with small brown specks, filling the sebaceous orifices and giving a "nutmeg-grater" sensation on passing the finger over them. On the forehead the lesions are larger, varying from the size of the head of a small pin to that of a medium-sized flat bead; all are slightly raised above the surface, are either flat or rounded, and distinctly hard, though greasy; they are much the same on the cheeks, though here, as on other exposed parts, they are kept worn down by washing and friction. On the chest you see the disease most perfectly developed, and here, and on the abdomen, which is largely covered, the separate, hard, brown papules are more elevated, rougher, and of a darker colour. On the back they are less thickly distributed, and on the forearms they are more closely set, forming patches. The groins and upper part of the thighs also exhibit thickly-developed masses of them, but nowhere do we find them so large or prominent as have been described in one or two similar cases; nor do we find a very distinct, fœtid odour which has been spoken of in other cases, although it is faintly marked here, and the patient says that at times it is much more perceptible.

The hands are rather peculiarly affected by the disease; on the backs there are single isolated papules, similar to those seen else-

where, and also brownish, dirty patches, evidently made up of the papules, closely packed together. The nails are affected in a very remarkable manner. They are all greatly thickened, so as to be raised from their bed, and the thickening is in the centre, while the sides of some are atrophied, giving almost a claw-like appearance to them. All of them are, as you see, very fragile, both at the ends and sides, with furrows and fissures running longitudinally.

The papules, especially on the chest and arms, appear at first sight to be firmly attached, and to form an integral part of the skin. They are quite easily raised with the point of a knife, without pain, and leave behind them a small depression, reddened, and somewhat resembling the surface left after picking out very small cups of favus; in some of them which I have thus dug out there is a little bleeding at the base. These small masses seem to be rather loosely attached, and are evidently horny and fatty concretions seated in the orifices of the sebaceous glands opening into small hair-follicles. Some of these masses have already been examined under the microscope by Dr. Pollitzer, who reports the presence in them of the *psorosperms* which, according to the French observers, form the diagnostic feature, as they are the cause, of the disease. On the head and one on the arm portions of the skin have been excised for further microscopical study.

What, now, is this curious affection which has lasted for many years, and resisted varied and thorough treatment, even in hospitals? Although these cases are relatively rare, there are a number of them on record, and, as before remarked, the disease is worthy of study for many reasons.

At first sight this condition suggests an ichthyosis in which the lesions are separated and isolated, and we accordingly find that a similar condition was mentioned by Wilson long ago, with the title *ichthyosis sebacea cornea.* Because of the evident implication of the sebaceous glands Guibout afterward criticised Wilson, and, considering the condition as wholly inherent to the sebaceous glands, he gave it the name *acne sebacée cornée.* Next Lesser considers the subject, and applies the name *ichthyosis follicularis* to the affection described by Guibout, and describes a case in a child, which he thinks is the same disease. Morrow reports a case which is pretty certainly one of the affection under consideration, with the title *keratosis follicularis,* because he considered the nature of the affection to be a cornification of the products of the sebaceous glands and adjacent fine hair-follicles; still later White reported a case of the same disease with the name *keratosis (ichthyosis) follicularis,* while Leloir and Vidal very recently described it under the name *acné cornée.*

I have thus given all I know that bears on the subject previously to the studies of Darier and Thibault, which have turned our thoughts in quite another direction. These observers based their

studies on two cases which appeared in the services of MM. Fournier and Besnier in the celebrated Hôpital St. Louis, of Paris. It is a little curious that just before they published their researches on the subject, one of these very cases was presented by M. Hallopeau, one of the physicians of the Hôpital St. Louis, before the Society of the Hospital, uuder the name "*acné sebacé concrète* with hypertrophy."

In examining the plugs or masses forming the papules, Darier, who is the head of the laboratory at the Hôpital St. Louis, found that the cellular elements composing them did not all behave under staining reagents exactly like altered epithelial cells, and under the microscope he found that there were other bodies which were foreign to the tissues under consideration, I cannot give all the details of his elaborate microscopical study, but will only say that he found certain round or oval bodies situated within the epithelial cells of the lower layers, which he believed to be of parasitic nature. I give very briefly Darier's own condensed statement of the appearance of these bodies as he described them at the International Congress for Dermatology and Syphilography in Paris, last year: "The malady is due to special parasites, which appear in the form of round, nucleated bodies, surrounded by a dense membrane, and situated in the interior of the epithelial cells whose nuclei they compress. They are found in great abundance at the bottom of the sac formed by the dilatation of the follicle: the horny plugs themselves are to a great extent composed of the parasites, but they are transformed in this situation into hard and refracting particles."

The exact nature of these bodies has not yet been fully determined. Darier believes them to be true parasites belonging to the order of sporozoaires, which are unicellular organisms belonging to the animal kingdom, and a subdivision of the protozoaires. This class includes (1) the gregarinæ, (2) the oval psorospermæ or coccidiæ (which is the one found in this disease), (3) the sarcosporidiæ, (4) the psorosperms of fishes or myxosporidiæ, and (5) the psorosperms of the articulates, or microsporidiæ. All these organisms live as parasites on other animals, and in certain cases give rise to fatal maladies. The coccidiæ, which alone interest us here, live almost exclusively in the epithelial tissues of vertebrates, where they are found even in the interior of the cells. They are distinguished from the other groups of sporozoaires, and especially from the gregarinæ, by several characteristics, such as the absence of movement at any period of their development, their intracellular location, their solitary encystment, and the relatively small number of spores formed in the cysts. The ovoid coccidia produce cysts in the biliary ducts of the rabbit, and in the human liver and ureters psorosperm cysts have been observed.—*Medical News, Nov.* 8, 1890, *p.* 465.

71.—ON THE CLASSIFICATION OF VACCINAL ERUPTIONS.

By Malcolm Morris, F.R.C.S.Ed., Surgeon to the Skin Department, St. Mary's Hospital, London.

Vaccinal eruptions may be divided into two principal groups: 1. Eruptions due to pure vaccine inoculation. 2. Eruptions due to mixed infection, that is to say, to vaccine, together with an additional virus. Under these two headings it is obvious that every kind of eruption can be included, and it will now be my endeavour to show, in certain subdivisions, how this is possible.

Group I.—Eruption due to Pure Vaccine Inoculation.

Division A. Secondary local inoculations. By this is meant the inoculation of vaccine virus from the vesicles to other parts of the skin. This can only be possible during the limited period before immunity is reached. There is much difference of opinion as to the exact time when the lymph ceases to possess specific action in the individual vaccinated.

Division B. Eruptions following within the first three days before the development of the vesicles. The explanation of these eruptions is that they are originated by reflex nervous influences from the part operated upon. The arguments in support of this view are, first, that similar eruptions occur frequently from trivial local nerve irritations; and, secondly, that they appear too soon after vaccination for it to be possible that absorption of the virus could cause any constitutional disturbance.

Division C. Eruptions following after development of vesicles due to absorption of virus. The first two of these general rashes seem to have been more frequently noticed in the early days of vaccination than at the present time. In both varieties the rash usually appears from the eighth to the tenth day around the vesicles, spreads rapidly over the body and limbs, and is accompanied by some slight constitutional symptoms. These facts would indicate that these rashes are caused by the widespread effect of the vaccine virus itself on the vasomotor nerves. Purpuric patches may appear as in other exanthems. The most interesting part of this group is that dealing with the general eruption of vesicles identical in appearance with the vaccine vesicles themselves. The eruption occurs suddenly, and at a late period. So many cases have been recorded that the existence of this eruption cannot be denied. Indeed, it is remarkable that it does not occur more often, for vaccination is not a mere local infectious disease, but one that affects the whole system, in which respect it is similar to small-pox. It is well known that after prophylactic inoculation of small-pox a general eruption often occurred, and was one of the reasons why the custom was abandoned; thus it is difficult to explain why in the case of vaccinia a similar rash does not appear more frequently. The germs of small-pox appear to have a

greater affinity for the skin than those of vaccinia. Some special action, either external or internal, may, however, produce an alteration in the skin, and make it a more suitable nidus for germ development. Hebra's experiments with croton oil on small-pox skin is in favour of this view. The change may be made from within as well as from without by the vasomotor influence already mentioned.

Division D. Eruptions appearing as sequelæ of vaccination. It is a well-established fact that after many of the infectious fevers, such as scarlet fever, measles, small-pox, etc., certain skin diseases develop. In a similar way, eruptions occasionally follow vaccination. The commonest are eczema and urticaria, but psoriasis and pemphigus have also been recorded. If we accept the view that eczema and psoriasis are produced by germs, it is possible to imagine that an infectious fever can, by altering either the tissue or the secretions, produce a more favourable nidus for germ development. As a proof that vaccinia has some such action on the skin or its secretions, many instances could be cited of the sudden disappearance of an extensive eczema after vaccination, exactly similar to the effect produced by other specific fevers having a decided cutaneous action, such as small-pox.

Group II.—Eruptions due to Mixed Infection, that is, the Combination of Vaccine and some other Germ.

Division A. At the time of vaccination.

Division B. Subsequent to vaccination, but through the wound.

Division A.—*a*. Producing local disease. *b*. Producing constitutional disease. The eruptions belonging to these two subdivisions have one special feature in common, which enables us, in consequence of epidemics, to recognise the source of the additional virus, even if we at present are unable to identify the specific germ. If a foreign germ is mixed with the lymph, and is distributed to a great many children at the same time, it will not fail to produce an epidemic of the disease, whereas if the contamination takes place after vaccination only a few isolated cases will occur.

(*a*) Producing local disease. The first disease to be considered under Division A is contagious impetigo, which can be inoculated with the vaccine virus, become developed in the vesicles, and spread by auto-inoculation to all parts of the skin. It does not interfere with the formation of the vesicles.

Another local manifestation is a dermatitis or erythema, which starts from the areola and spreads over a limited area, passing imperceptibly into healthy skin. This is often spoken of as true erysipelas, but, as it never extends to other parts of the skin, it is in reality only a local dermatitis. It is possible that this local affection may be a necessary sequence of pure vaccine virus, or due, it may be, to some other irritating germ. The older writers —Jenner, Ceely, and others—thought it the former, but, as it is so rarely seen in the present day, the latter view seems more probable.

(*b*) Producing constitutional disease. The diseases in this group have always received the most serious consideration because of their constitutional nature and possible consequences. In connection with syphilis, much has been recorded, and the fact that it is communicated by vaccination cannot be denied. The work done by Mr. Hutchinson and others proves this beyond dispute.

I do not propose to consider this subject in detail, but to mention it for the purpose of making the classification complete. I therefore only submit one special question for discussion, namely, Can syphilis be transmitted during the latent period by means of vaccination? It seems probable, judging from the rarity of vaccinal syphilis as compared with the inherited form of the disease, that, if pure lymph is used, the syphilis cannot be transmitted before the eruptive period.

Leprosy and tuberculosis are included in this subdivision, because they are inoculable diseases, though not to the extent of syphilis. The idea is prevalent in some leper countries that the disease is propagated by vaccination. Though the subject is mentioned by authors in general terms, I have only been able to find two published cases. Daubler records the fact that leprosy has been conveyed by vaccination. He says he has observed two cases on Robben Island, in which he can prove that leprosy was produced by no other means than through inoculation from man to man by vaccination. The observations of the surgeon who vaccinated them agreed perfectly with those of one of the patients. Both of the patients were vaccinated at the same time by the same surgeon. The two patients had not been long in the institution, and the surgeon had been struck by the irregular appearance of the leprosy, before he was aware of the revaccinations having taken place. He told Daubler that he had made inquiries in that direction of the patients and others.

It is extremely doubtful if tuberculosis has ever been transmitted by vaccination. Even lupus in the scar is not recorded so far as I am aware. The only suspicious lesion may be the so-called "raspberry sole" of Morrow. I have seen one example of this fungating growth, but as no microscopical examination was made I am unable to speak of its real nature.

Division B. Introduced not at the time of vaccination, but subsequently through the wound:—

1. *Erysipelas.*—True erysipelas occasionally occurs. It is to be recognised from the local dermatitis already mentioned by its characteristic margin, swelling, tension of the skin, high fever, and general constitutional disturbance, and by the rapidity with which it spreads over the limbs and body. We cannot suppose that the germ of erysipelas exists in normal human or calf lymph. Thus we are compelled to believe that all cases of true erysipelas after vaccination are caused by contamination of the wound.

2. *Cellulitis* is even more rare than erysipelas—a point strongly in favour of late contamination.

3. Occasionally *Boils* are seen after the eighth day, not only near the pustules, but on other parts of the body.

4. *Gangrene.*—Cases have been recorded in which gangrene has attacked the vaccine vesicles, causing extensive sloughing. There is also Mr. Hutchinson's remarkable case of a general vaccinia becoming gangrenous. The explanation of gangrene in any circumstances is by no means easy; but I do not think that in the case of vaccination it is to be explained by the so-called bad constitution of the child, nor do I think the germ—if there is a special gangrene germ—is introduced with the vaccine lymph.

5. *Pyæmia.*—This condition is so rare as almost to justify its exclusion from the list. It is caused by the introduction of pus cocci into the wound and subsequent absorption into the tissues.—*British Medical Journal, Nov.* 29, 1890, *p.* 1230.

[See also Mr. Morris's recommendations for the "Prevention of Vaccinal Eruptions" in the *Synopsis* of this volume.]

AFFECTIONS OF THE EYE AND EAR.

72.—ON THE TREATMENT OF CHRONIC GRANULAR LIDS.

By G. E. A. Schweinitz, M.D., Ophthalmic Surgeon to the Philadelphia and Children's Hospitals.

Of the numerous applications used in the treatment of this disease the following have met with deserved favour:—Strong solutions of bichloride of mercury, sulphate of copper, either in the form of a crystal, or as *lapis divinus*, which consists of alum, nitrate of potassium, and sulphate of copper fused together, and camphor equal to one-fiftieth of the whole added, and the preparation run into a mould to form a stick; nitrate of silver in solutions of varying strength according to the exigencies of each case, or as the mitigated stick, and boro-glyceride.

Taking a case in which there is conspicuous lymphoid infiltration of the conjunctiva, but without mucopurulent discharge, and unassociated with much hypertrophy of the papillary layer of the conjunctiva, the lid should be everted, and all portions of the mucous membrane upon which the follicular eruption can be detected carefully touched with a small mop of absorbent cotton previously dipped in a solution of bichloride of mercury, 1 to 500. The conjunctiva lining the lids passes to the ball through a somewhat loose reflection of the membrane forming in the upper and lower lids the fornix, or retrotarsal fold. Now sometimes, when the upper lids are everted, this will come into view, but sometimes it will not, and many mistakes are made simply by turning

the lids without an endeavour to bring this fold, which is particularly liable to infiltration with the granulations, into prominence. This usually can be accomplished by making the patient roll the eye strongly downward. If this is not sufficient it is better to evert the lid over a spatula and push the fold into view. This little detail deservesattention, as failure to accomplish it successfully means failure to apply the local remedy on the spot where it is most needed. I have many times watched attendants in hospitals making applications which never reached more than the anterior portion of the everted lids, totally failing to come into contact with the transmission fold tucked back and under the crease of the turned lid. If instead of the conspicuous lymphoid infiltration just stated the granulations are more dense, more elevated, and rougher, the strength of the bichloride solution may be increased 1 to 300. At first every other day, and afterwards three times a week, is sufficient for this application, and at the same time the eyes should be thoroughly irrigated four times a day or oftener with a tepid solution of the same drug of a strength of 1 to 7000. It requires some judgment to know how often to repeat the stronger application, a safe rule for this and for all instances being the amount of reaction produced, and it is wise never to repeat a severe topical medication while the irritation of a previous application is still pronounced. This treatment, which a few years ago was especially advocated by Staderini, Arnauts, and others, in a great many instances is the most satisfactory of the local applications. It may be used whether pannus is present or not, and I do not believe it is contra-indicated even when ulceration of the cornea complicates the pannus. It is easily seen that the physiological action of the application is twofold. First a powerful germicide is employed in a disease that is believed by many to be of bacterial origin; in the second place a caustic is used, but not of such a character that it destroys tissue to the detriment of the surroundings.

If, during the course of the treatment on inspection of the lids with a *loup*, a precaution it would be wise to exercise before each application, the condition which I described before, quoting from Professor Raehlmann, of ulceration of the softened follicles with extrusion of their contents is observed; or, if the case is in the stage of softening, with swelling of the papillary layer, increased pannus and mucopurulent or purulent discharge, nitrate of silver becomes the more suitable remedy. In most instances a sufficient strength is 10 grains to the ounce of water, applied with an absorbent cotton mop. Occasionally, the strength may be increased to 15 grains, and under certain circumstances the mitigated stick may be employed. In all cases where strong solutions are used these must be neutralised with common salt, or the excess washed away with plain water. In making the

application a distinct white film should form over all portions touched, and the treatment should never be repeated until the tissue thus destroyed and represented by the white film has been shed with the formation of new epithelium. Nitrate of silver, in the first place, is a powerful germicide, and, in the second place, is superficially strong but does not penetrate deeply, because the film of coagulation which it forms prevents its entrance into the subjacent tissues. When the stage of ulceration has been checked by this means, as may be found by ocular inspection and judged by the disappearance of the discharge, the bichloride of mercury treatment or one of the other caustics may be resumed. During the treatment by the application of the silver, made at such intervals as the amount of reaction teaches is wise, scrupulous cleanliness with antiseptic lotions, preferably, I think, bichloride of mercury, but, in the belief of some, saturated solutions of boric acid, should be continued. A remedy with which I have had some success, and which I do not see mentioned in the text-books, namely, hyposulphite of sodium put up with glycerine and water may be tried. At one time I used it quite extensively in the Philadelphia Hospital, and while I could not see any effect in the absorption of the granulations, it seemed to relieve the patients of the intolerable irritation of which they so constantly complained.

When by treatment a case has reached that condition in which the surface of the conjunctiva remains rough, but distinct prominences are wanting, and yellowish and white lines begin to intersect each other between the granular surface; or, in other words, when the early evidences of cicatrization are beginning, sulphate of copper or *lapis divinus* is the best application. It is rather painful but must be faithfully applied exactly in the same manner described with the other remedies, always douching the lids with cold water after its use. In the presence of discharge it does not appear to act as efficaciously as at other times, but in all other stages it is useful, in the belief of many, the most useful local medication. It should be remembered now that we have to deal with a caustic not severe enough to destroy healthy structures, but efficient against granular tissue, whether we believe this to be analogous to the granulation of wounds or not. It is, moreover, a stimulant and an alterant to the mucous membrane at a time when such actions are most necessary.

During the final stage, as the granulations are gradually disappearing, and the cicatrization becoming more complete with a tendency to dryness, it seems to me that boroglyceride has a twofold action, namely, the absorption of those granulations which still remain and lessening the tendency to the production of a xerotic condition. It may be used in a strength as great as fifty per cent., but twenty per cent. usually will suffice. Many authors look with great favour upon this drug in phases of granular disease

other than the one I have just described. During all of these stages of the malady, and no matter what astringent or caustic is employed, scrupulous cleanliness should be maintained by the frequent use of one of the "eye-washes" to which attention has been directed.—*Medical News, Feb.* 7, 1891, *p.* 150.

73.—THE EMPLOYMENT OF PILOCARPINE IN CERTAIN AFFECTIONS OF THE EAR, AND ON THE ABUSES OF THIS REMEDY.

By Dr. Adam Politzer, Prof. of Otology University of Vienna.

The favourable results obtained in a series of cases of severe eye affections, particularly of acute irido-cyclitis, hemorrhages into the anterior chamber of the eye and opacity of the vitreous body, induced me in 1879 to give this remedy a trial, selecting to begin with several cases of labyrinth affection of an undoubtedly syphilitic nature. The *rationale* of this measure was that in virtue of the rapidly occurring change of matter the reabsorption of unorganised exudation products might be brought about. The results of this experiment were so satisfactory that at the second Otological Congress at Milan in 1880 I was able to recommend a continued trial of this method to my colleagues in cases of recent affections of the labyrinth. Since that time I have employed subcutaneous injections of pilocarpine in every variety of recent and chronic affections of the labyrinth, the results obtained by myself and others (Moos, Lucae, Wolf, Pollak Barr) being in several instances so favourable that the value of muriated pilocarpine in labyrinth affection must not be under-estimated. I have been in the habit of using a 2 per cent. solution, two drops of which are injected subcutaneously in the forearm, and the dose gradually increased a drop at a time to eight. Following rapidly upon the injection there is a considerably increased secretion of saliva and sweat, which ceases after the lapse of from thirty to forty-five minutes. Rarely it is accompanied by disagreeable symptoms, such as nausea, vomiting, giddiness, fainting, collapse, spasm of the bladder, which can be antagonised by taking from two to three drops of atrop. sulphurici 0·03, aqua destillata 10·0. The injections are to be made daily. If after the lapse of a fortnight the use of this remedy does not produce an improvement in hearing, it must be regarded as ineffectual and be abandoned. But if, on the other hand, an early and distinct improvement in hearing can be observed, the injections should be continued as long as there is a progressive increase in the faculty of hearing to be elicited upon examination. The period in which the maximum of the hearing distance is attained varies from six to forty days. It is to be noted that the increase in the hearing power is rarely regularly proportional, since it is usually most rapid in the first week or fortnight, while

in the subsequent course of the treatment it progresses very slowly. In rarer cases the reverse is true, the hearing power at first increasing slowly and later more rapidly.

Vacillations in the hearing distance are not infrequently observed in the course of treatment, a rapid improvement of several days being promptly followed by a rapid diminution of it, lasting also for some days. The use of subcutaneous injections of pilocarpine, which was at first limited to syphilitic diseases of the labyrinth, was extended later also to those cases of deafness which were found to be dependent upon an affection of the auditory nerve apparatus. This proceeding was indicated by the rapid development of deafness apart from any discoverable anatomical damage in the middle ear, and confirmed by the result of the examination with the tuning-fork, the latter affording, I consider, important indications for the employment of pilocarpine. If the examination with the tuning-fork proves that in a case of extreme deafness the sound is heard perceptibly longer opposite the ear (air conduction) than from the mastoid process (positive experiment of Rinne); also that low tones are better perceived by air conduction than high ones; and, lastly, if there is a history of symptoms pointing to the implication of the labyrinth, such as giddiness or total inability to hear the ticking of a watch through the head bones, then the existence of an affection of the labyrinth is very probable, and it is in such a case that the subcutaneous injection of pilocarpine should be employed. I use but rarely subcutaneous injections of pilocarpine in certain forms of acute inflammations of the middle ear.

In the first of my works mentioned below I have cited several cases of acute inflammation of the middle ear in which perforation had not taken place. Where a protracted local treatment failed to produce reabsorption of the hardened exudation products lying in the cavity, and where after three or four subcutaneous injections of pilocarpine a constant improvement could be observed, the effect must be referred to the speedy solution and absorption of such exudation products. In like manner the subcutaneous injection of pilocarpine is to be recommended in those cases of acute suppuration of the middle ear in which perforation of the tympanic membrane has occurred, and in the course of which deafness supervenes, dependent upon some complication of the labyrinth.

Within recent years I have used muriated pilocarpine locally in affections of the labyrinth and the middle ear, injecting from six to eight drops of a 2 per cent. warmed solution through a catheter into the Eustachian tube and cavum tympani. When pilocarpine is thus employed in the above-mentioned concentration and quantity no unpleasant results supervene; it is only in rare cases that salivation and abundant diaphoresis are observed, and these soon after injection. In chronic catarrhs of the middle ear I inject pilocarpine into the tympanic cavity, particularly in those cases where

the power of hearing is distinctly improved after inflation of the middle ear, and where a slight swelling in the Eustachian tube can still be discovered upon auscultation. The object of the local application in these cases is to bring about a slight reaction in the mucous membrane of the middle ear, and in this way to cause the absorption of inflammatory products. And, as a matter of fact, in some particular instances the improvement of hearing following these injections has been more pronounced than that obtained by the use of 10 per cent. solutions of soda, which until now have been most frequently employed. On the whole, the cases in which the local injections of pilocarpine produce a notable result are but few; in most cases the faculty of hearing does not improve at all, or the improvement is only indifferent and of short duration. Here, too, the treatment must not be extended beyond two or three weeks. It is quite otherwise with the so-called cases of chronic catarrhs in the middle ear, where the adoption of this method of treatment must be deprecated. I have already shown that, in the year 1885 (Wiener Med. Zeit. 4, 5, 6), and again in my Text-book of Ear Diseases (1887), the treatment of dry catarrhs of the middle ear with pilocarpine is worthless. The position to-day has not changed. It must also be insisted upon that in every case of extreme deafness where the tuning-fork can be heard longer from the mastoid process than opposite the ear (air conduction, negative experiment of Rinne), and, in addition, where low tones are not at all or only faintly perceived through the medium of air, while high ones are at the same time very distinctly heard, the subcutaneous treatment with pilocarpine is strongly contraindicated.

The above remarks have been found necessary from the circumstance that for some time past I (I am not singular in this experience) have been consulted by many patients suffering from extreme deafness who had been previously treated by other aurists for several weeks, or even for several months, with subcutaneous injections of pilocarpine without the slightest benefit, in the cases of which an examination showed the presence of a marked sclerosis of the mucous membrane of the middle ear.

While it is true that the subcutaneous injections of pilocarpine usually can be tolerated by the patient for several weeks without any unpleasant consequences, still there are cases in which its protracted use has produced loss of appetite, faintness, and considerable emaciation. When I consider the abundant salivation and diaphoresis, so disagreeable to the patient, which are associated with the daily use of this remedy, I feel it my duty to say that those practitioners who in all cases of extreme deafness indiscriminately—that is, without a previous careful examination by means of the tuning-fork and consequently without any differential diagnosis between affections of the middle ear and those of the laby-

rinth—subject their patients to a long and wearisome course of treatment with pilocarpine are not too conscientious in the discharge of their calling.

The following is a summary of the above: 1. The subcutaneous injections of pilocarpine are particularly indicated in recent affections of the labyrinth, be they of a syphilitic nature or not. In protracted diseases of the labyrinth these injections, if tried, must be abandoned if no improvement results after from ten to fifteen injections. 2. The subcutaneous injections of pilocarpine are but rarely employed in otitis media acuta, where the cavum tympani contains hardened exudative products, which resist reabsorption; moreover, in panotitis gemina diphtheritica, or in other diseases produced by infection. 3. The subcutaneous injections of pilocarpine are decidedly contraindicated in cases of dry sclerotic catarrhs of the middle ear. 4. Injections of several drops of a 2 per cent. solution of muriated pilocarpine through the catheter into the tympanic cavity are beneficial in some cases of catarrhs connected with swelling and a slight secretion of the mucous membrane of the middle ear, continued from one to three weeks alternately, with inflations of air by Politzer's procedure. The purpose of the present communication is to reduce to a just measure the therapeutic value of the subcutaneous injection of muriated pilocarpine in diseases of the ear, and to draw attention to the frequent abuse which has been made of this remedy for some time past.—*Lancet, Jan.* 3, 1891, *p.* 10.

74.—ON THE DIAGNOSIS AND TREATMENT OF INFLAMMATION OF THE MASTOID.

By J. Orne Green, M.D., Clinical Professor of Otology in Harvard University.

[Dr. Green's article opens with an exhaustive classification of the varieties of mastoid disease, with statistical tables and some important general remarks upon the condition in question.]

The symptoms I have relied upon are, first, the history of an existing or preceding tympanic inflammation, in the majority of cases attended by an otorrhœa, but not always, for the discharge may be so slight as to escape observation, or, in exceptional cases, there is no rupture of the drum-membrane and consequently no discharge. Again, the tympanic inflammation may have wholly subsided and the inflammation of the mastoid developed weeks afterward. Of such instances I have seen quite a number.

Of the subjective symptoms, pain in the mastoid and over the side of the head are very common. Objectively, sensitiveness of the bone on pressure I regard as the most important single symptom. This sensitiveness must be looked for carefully; it is often only developed on deep pressure of the bone, and may be

very limited in extent and on any part of the mastoid, although most frequently found over the antrum. Exceptionally it is wholly wanting, and the other symptoms have to be relied upon for the diagnosis. Œdema of the upper posterior wall of the meatus close to the drum-membrane, when it exists, is an almost certain indication of mastoid inflammation; it is characteristic of inflammation of the antrum, however, and where the inflammation is chiefly in the lower portion of the mastoid cavities it may be wholly wanting, and consequently its absence does not preclude mastoid disease.

Œdema of the external tissues is the most common indication that pus is forming beneath the periosteum, but this is by no means always the case. It may exist without pus, may continue for a long time without pus, and even subside without any suppuration under the periosteum or any external caries of the bone. It is an indication of extension of the inflammation only to the overlying tissues, and we may have it from simple ostitis.

Of 12 cases in which osteo-sclerosis was found, œdema of the skin over the mastoid was present in 5, and in 2 of these no pus was found either in the diploë or in the cells. Subperiosteal pus may exist without œdema over it, and caries even without any external manifestations.

Fluctuation I find a very uncertain symptom; the pus is so confined and the tissues over it often so swollen that it cannot be detected, and again, the œdema is not infrequently so great that it gives a sense of fluctuation by which the most expert may be deceived.

Another very important symptom of mastoid inflammation is the continuance of a tympanic suppuration in spite of thorough and persistent cleansing and rational treatment, when no other cause for the chronicity can be discovered, such as granulations or tympanic caries.

The pulse and temperature are, of course, a valuable assistance in many cases; this is especially true of the very acute forms attended with rapid and profuse suppuration, but in the less acute varieties and just in the cases where there is the most doubt in diagnosis they are often of no value whatever, remaining normal throughout the disease.

A diagnosis of the exact condition previous to operation I find impossible in a large proportion of cases. One can speak quite positively of the existence of inflammation, but whether the operation will develop a subperiosteal abscess, caries of the cortex or interior, an ostitis without suppuration, or a suppurative osteomyelitis, is often uncertain. The operation is equally indicated and beneficial in either condition. I find it also impossible to predict beforehand the anatomical condition of the mastoid, whether pneumatic, diploëtic, or sclerosed; a large well-developed

bone is more likely to be pneumatic than a small one. I have supposed that the duration of inflammation helped afford a clue to the condition, sclerosis being more probable in a chronic case than in an acute one. These statistics seem to support this view, as I find that in 40 per cent. of my cases of osteo-sclerosis the mastoid symptoms were chronic, while of the whole number of cases but 24 per cent. were chronic. I have found sclerosis of the bone not at all infrequent in dissections, but whether we are justified in asserting that this is always the result of inflammation I do not feel sure. In operating it is certainly met with quite often in very acute cases, where we cannot get a history of any previous inflammation.

The amount of pus found in the interior of the bone varies very much in the different varieties of the disease; it is really abundant only in cases of suppuration of the mucous membrane. In osteo-myelitis it is found only in the minutest quantities, and sometimes not at all; with caries and necrosis it is often so small in amount that it can easily escape notice in the free bleeding which takes place from the granulations.

Method of Operating.—I have tried all the different methods, beginning with the small trephine, then various forms of boring instruments, reamers, chisels, and gouges, and the dental engine, but for the last three years have used the gouge and mallet for opening the bone, and the dental engine afterward to enlarge the opening, to remove irregularities of the bone on the interior, but more especially to clear off a carious surface on the interior, for which it is especially adapted by its rapid cutting and by the delicacy with which it can be manipulated. I have never seen any ill-effects from the engine, but I am always careful to use it for only a very short time on account of the heating, and never with drills but with burrs. Its use does away with much hammering and the resultant shock to the brain.

Unless nature has furnished a guide in the shape of a carious perforation which, when enlarged, will give sufficient drainage, I endeavour to open the antrum, following the rules laid down by Schwartze. A communication with the tympanum, as shown by the passage of fluid from the wound into the meatus or Eustachian tube, is, in my experience, rather the exception than the rule, but this fact was not carefully enough noted for me to speak of the actual proportion of cases in which it occurred. Although I am very glad to have it, I am satisfied in a large proportion of cases it is not necessary for the most perfect and rapid cure.

I have met with but one accident in the operation, in a case operated upon since my statistics were compiled. In a man I had perforated about half an inch through a sclerosed bone and was examining the depth of the wound with a blunt director, when it broke through a thin layer of bone, and this was immediately

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followed by a most profuse venous hemorrhage, which I at first thought must come from the lateral sinus. Examination with a probe, however, detected bone in every direction in the opened cavity, and I think it was a case of enlarged diploëtic veins, which are spoken of by Schwartze as sometimes existing. The bleeding was so profuse that any further operation was impossible, the wound was packed with iodoform gauze, a pressure-bandage applied, and the patient is making a good recovery.

I have long since given up metallic drainage-tubes, and use only rubber. General antiseptic precautions are used, with abundant irrigation of corrosive sublimate 1 : 3000. The ear is dressed daily and irrigated with corrosive 1 : 3000 for several days, and then with 1 : 5000; generally within a few days all odour disappears, and when the discharge diminishes the dressing is made only every second day, rarely at longer intervals, on account of the risk of infection from the inside. To stimulate granulations in bare bone I use iodoform, either in powder or ethereal solution.

Several times I have exposed the dura mater and lateral sinus in the removal of sequestra, but without any injurious effect.

The good effects of the operation are usually seen within two or three days, and often immediately in relief to the pain, and there is generally a rapid improvement in the tympanic condition, but the chief object, of course, is the prevention of extensive destruction and the fatal complications which are well known to often supervene.—*American Journal of the Medical Sciences, December* 1890, *p.* 583.

SYPHILITIC AFFECTIONS.

75.—ON THE RELATIVE VALUE OF MERCURY AND IODINE COMPOUNDS IN THE TREATMENT OF SYPHILIS.

By L. Duncan Bulkley, M.D., New York.

As regards the treatment of syphilis itself, the neutralization of the poison, so that it cannot be again communicated to another, or be transmitted to offspring, the opinion of modern observers agrees, I think, that mercury alone possesses the true anti-syphilitic power, while iodine and its preparations exert very little if any influence in this direction; that is, that in the acute, infectious period of syphilis the latter if used alone could not control the development of the disease, nor hinder or check its contagious properties, whereas mercury does possess this power in a striking, although not always in an absolute and perfectly satisfactory degree.

But, although I have spoken, and wish to speak, strongly in favour of a mixed treatment in many cases of syphilis, especially

in the later stages, I also recognise the fact that there are periods and conditions of the disease when mercury or iodine may be best used alone; these we will briefly consider.

During the very early stages of syphilis iodine, with its compounds, seems to exert very little effect, whereas the results following an active and efficient mercurial course are often most striking and satisfactory.

When by a well defined hardening, or by marked local or general adenopathy, or by an early eruption, the diagnosis of a primary sore, or true chancre of syphilis is determined with certainty, an active mercurial course should be at once instituted, and iodine is uncalled for, and some think it to be harmful. The simplest, and in many respects the best treatment is then by means of the grey powder of mercury and chalk, which can be conveniently administered in one grain tablets. These may be given, one every two hours, or even two at a time, until the effect of the mercury is seen, either in the rapid healing of the chancre, or in the subsidence of other symptoms, or, until a slight mercurial influence has been obtained in the mouth; the dose may then be lowered, by giving it every three or four hours. If now, the individual seems to resist the effect of the drug, the strength of the mercurial treatment can be increased by the addition of a few mercurial inunctions, or an occasional mercurial vapour bath. It is needless to say that all this should be carried far short of any actual salivation, and with the appearance of any marked tenderness of the gums or excessive flow of saliva, the doses of the mercury should be reduced to one-half, and then in a few days be slowly increased; salivation, if it be at all severe, rather hinders the treatment. Careful attention to the mouth, and the free use of chlorate of potash as a gargle and mouth wash should never be forgotten: but, on the other hand, I must enter my protest against the practice advocated by some of having the teeth carefully gone over by the dentist as a prophylactic, for I can never think it justifiable to expose another, and perhaps many through him, to contagion from the abundant and infectious mucous patches liable to be found in the mouth at this early stage of syphilis.

Mercury used locally is also of the greatest value in the early period of syphilis, and calomel freely dusted on, or black wash kept freely applied, or a mercurial plaster over the chancre will do much to hasten its disappearance, and the arrest of the disease.

There are other means of using mercury for its general effect in this early period of syphilis, the merits of which I can hardly discuss here. The bringing of the system under influence of the drug can be accomplished by frequent mercurial vapour baths, also by mercurial inunctions alone; likewise by the hypodermic injections of mercury and oil, or its various salts, as has been

recommended by many: but, practically, in the majority of instances the drug can be introduced more pleasantly and quite as satisfactorily by the stomach, and my preference is decidedly for the grey powder, used as described, although the bichloride will often act kindly, though more prone to disagree with the stomach.

If now, the patient with syphilis remains faithful to this treatment, and the chancre heals soon, and other symptoms either fail to appear or are removed quickly, there is naturally no call for iodine or its preparations, although some would prefer to give a mercurial combined with iodine, the red or green iodide later in the course of the treatment; this, it will be understood, should, in accordance with the best modern views, be continued (with intermissions perhaps) for two years, or even longer, if troublesome symptoms or lesions have shown themselves.

We come now to consider the proper place for iodine and its combinations in the treatment of syphilis.

Unfortunately in but a small proportion of the cases of syphilis will the patient have had the satisfactory course alluded to above. For one reason or another, full and efficient treatment has not been carried out by the large majority of persons who have received syphilitic infection, and at varying periods in the course of the disease lesions of more or less troublesome and serious character will occur on the skin, mucous membranes in the bones, muscles, nervous system, viscera, or other portions of the body. It must be acknowledged also that in a certain number of individuals some of these graver manifestations of the disease will appear even during the course of and in spite of a thorough mercurial treatment, even quite early in the disease. If mercury is now given, and even pushed, for these more definite and serious manifestations of the disease, what is the result? They will often even increase in severity and extent, and the patient instead of being benifited is harmed in many respects by the treatment instituted and pressed ever so vigorously.

Now comes the action of iodine, which will sometimes seem almost miraculous; lesions which before had been stationary, or had even increased in severity will seem to melt away, and a disease which had before been rebellious, yields to medical skill and knowledge, and it may be that a life which before was threatened, is rescued, simply by the action of iodine or its compounds.

Many writers advise the compounds of iodine to be given alone, unaccompanied by mercury, and the accounts of the enormous doses which have been at times administered would astonish any one accustomed only to the ordinary dose of a few grains, as commonly prescribed. In certain rare and neglected cases, where grave nerve lesions from syphilis threaten life, such doses, running up into many hundred grains of the iodide of potassium daily, have undoubtedly saved life, and may be necessary; the remedy

certainly should be pushed to the fullest extent possible when occasion seems to demand.

But, on the other hand, I am convinced, from not a small experience in syphilis, and from the results in my share of grave and threatening cases, that these exceedingly large doses are rarely if ever required, provided that other means are intelligently and judiciously employed; in other words, I believe that even in the latest stages of syphilis, and in its gravest manifestations, a certain amount of mercury will certainly aid in overcoming the disease and in removing the lesions. I know full well that in certain cases, and at certain times mercury will not be well borne, and the system will seem even to become lowered under its use; but there are very rare instances, and if combined with proper bitter tonics and iron, mercury can be borne and will aid in the treatment of all stages of syphilis. But, of course, it must be used carefully and judiciously in those of broken down habit, and often other remedies, mineral acids, &c., are required to secure the best results.

My more common method of treatment of the later manifestations of syphilis is by means of the old mixed treatment, where a minute dose of mercury is combined with a moderate dose of an iodide, with iron and a bitter tonic; if the symptoms do not yield, the active elements of the treatment are increased until the desired effect is produced. The mercury in the mixture is first slowly increased, $\frac{1}{32}$ of a grain of the bichloride of mercury, to $\frac{1}{24}$, $\frac{1}{16}$, $\frac{1}{12}$, or possibly more; this is especially the case in lesions occurring during the first year or two after infection. For lesions occurring later in the disease, or when others still prove rebellious, the amount of the iodide is increased, the other features of the treatment remaining the same; or possibly being also added to.

Thus, the mixed treatment being continued after each meal, a watery solution of the iodide of potassium, sodium, or ammonium, or a combination of them, is given in Vichy water, *between* the meals, beginning, say, with fifteen grains three times daily, and augmenting the dose daily, until the symptoms yield; in some instances the syrup of hydriodic acid between meals will act better, or the compound liquor iodi, or the iodide of starch may be employed.

If early in the disease, and the mercurial element seems to be required, the mixed treatment may be added to by means of occasional mercurial baths or inunctions. But, personally, I have not been satisfied with the plan of giving a mixed treatment by means of administering the mercury and iodide entirely separate, as advised by some writers; I feel confident that better results can be obtained by combining them together in proper proportions in one dose, and then augmenting the strength of one or the other element, in the manner above described, to meet the indications of the case.—*Journal American Med. Association, Nov. 29, p. 773.*

76.—ON CHANCRES OF THE FINGERS.

By R. W. Taylor, M.D., Lecturer on Venereal Diseases in the College of Physicians and Surgeons, New York.

For clinical purposes we may divide chancres of the fingers into four forms, as follows: 1, The scaling papule or tubercle; 2, the excoriated or exulcerated nodule or mass; 3, the fungating chancre; and, 4, the panaritium-form chancre.

1. *The Scaling Papule or Tubercle.*—This form of digital chancre is the mildest and simplest in character, and is the rarest of all forms observed on these members. It is usually found upon the dorsal surface of a phalanx, and exceptionally it is seated upon the palmar surface or the sides of the fingers. It usually begins on the site of a slight cut, an excoriation, or a fissure. The traumatic lesion may or may not heal and disappear. The chancre begins as a small red spot, which may or may not be scaly. This spot usually grows quite promptly, and in about a fortnight a round or oval papule or papulo-tubercle is formed, having a diameter of half an inch more or less. Thus fully formed the lesion may be of a dull coppery red, occasionally of a bright rosy red, and also of a dull purplish hue. It may thus remain in an indolent slightly scaly state, or it may extend. Whenever the morbid process extends and reaches the wrinkled skin over the joints, fissuration is liable to occur, and this complication may be the starting-point of an ulcerative process which may involve the whole extent of the chancre. In this event this lesion may assume the characters peculiar to the two following forms of digital chancre. Then, again, owing to any traumatism, such as friction, blows, washing, chemical irritants, heat and cold, the chancre may, even when not impinging on joint surfaces, become excoriated and ulcerated. In its uninflamed state the scaling digital chancre runs a chronic, uneventful course, and causes little uneasiness, and not much inconvenience. It thus often happens that its serious nature is not suspected, and frequently the diagnosis is not made until the evidence of lymphatic hyperplasia or of secondary manifestations makes it clear. The scaling papule may exist for weeks, or two or three months, and then it sinks down and disappears, leaving a thickened, more or less purplish or brownish-red pigmented site, which may or may not be the seat of induration or of more or less atrophy.

2. *The Excoriated or Exulcerated Nodule or Mass.*—This form of digital chancre may be said to be the most common, and it has well-marked features. It is usually found toward the end of the finger, and to have its origin in some lesion of the nail margin. This may be an excoriation or fissure, a hangnail, or even some slight separation between the skin and nail inappreciable to the naked eye. The original wound frequently heals, but in some cases it remains open and indolent until the advent of the syphilitic process.

The exulcerated nodule of the fingers usually begins as a small pustule or as a minute, red excoriation of varying shape. This latter lesion increases quite rapidly in area and in height, and is, in its early days, indolent and painless. It may reach only to small size, but usually the hyperplasia is luxuriant. Full development may occupy a period of two to four weeks. We then find a large, fleshy, smooth, granular, or even lumpy mass, of a dull red colour, sometimes with a purplish tinge, which, to examination, reveals a condition of firmness but not of decided induration. Then, again, in some cases this chancre is rather soft and flabby. The shape of the mass depends on its situation. If seated on one side of the finger it may jut out from one-half to one inch. If both sides of the finger (and in this event the whole margin of the nail is usually the starting-point) are involved, the mass may become as large as a horse-chestnut. It may or may not give to the finger the shape of an Indian club. The course of this chancre depends entirely upon the manner in which it is treated. If kept free from irritation and at rest, it will slowly subside, but if irritated its duration is indefinite. Cases are known in which these chancres have existed for nearly a year. I have seen one such instance. Their chronicity is an important matter, for it carries with it dangers of infection to others.

Under treatment the excoriated nodule gradually becomes the seat of healthy granulations, which wither and contract with or without suppuration (which may be prevented by antiseptic treatment) until a scar or a dense fibrous, perhaps indurated, mass is left. These chancres are, as a rule, followed by more or less deformity. In some cases the nail is wholly destroyed, or the destruction may be partial, and may be replaced by an imperfect new-formation. There is usually more or less destruction of the nail margin, and very often the distal phalanx is left in a distorted or shrivelled state. When originating in the sulcus under the free margin of the nail these chancres may lead to the loss of the tactile pad of the finger, and to a conical, slightly shortened state of the organ. Besides the unsightliness of the deformity, this sequela is to be regretted by reason of its impairment or abolition of the tactile function. In some cases tenderness and pain are complained of for long periods, and mild phlebitis and lymphangitis may for a time be present. Then, again, pain of a very severe and persistent type is often observed during the course of this chancre.

3. *The Fungating Chancre.*—This form of digital chancre is a not uncommon one, and begins in a moist or dry red spot, or a pustule upon the seat of some traumatism, and is most commonly found toward the tip of the finger. Usually the lesion pursues a mild and subacute course for a week or two, being simply a large or small excoriated or exulcerated nodule, as already described. Then generally, as the result of some irritation, but also from con-

ditions inherent in the chancre process, granulations begin to spring up and the surface of the chancre becomes fungating. This appearance may consist in a condition to which we would ordinarily apply the term profuse granulations, or it may be of a decided fungoid character. The granulations are then very large and very long, and it is usually to be distinctly seen that they, after springing from their base, become separated from one another by a distinct but small interval. I have seen them as long as one-eighth of an inch or one-sixteenth of an inch, and even longer. They look like digitate processes, and resemble, though slightly, in shape, but not in colour, the verruca digitata. They may also resemble in some cases condylomata lata which have become vegetating. To the touch these fungating chancres are not very firm or resistent, and they may even be soft, boggy, and compressible. They are usually of a dull bluish or purplish red colour, and I have seen them of a pale gray, or of a gray tinged with blue or lilac colour. As a rule, no evidence of the existence of blood-vessels is to be seen in their structure. They are most exuberant and fully developed when springing from the pulp of the finger, and may be seen in a lesser size around the nail margin, and even on the sides of the finger. These fungating chancres sometimes run an indolent course, showing little, if any, tendency to healthy action, and then again they are observed to become the seat of rapidly exuberant growth, which shows a persistency to recur even in spite of active cauterization or destruction. Under proper treatment they sink down and wither, and give place to a healthy healing surface. There is commonly more or less deformity left by these chancres. Either the nail is more or less permanently destroyed or a retractile and perhaps fibroid red or purplish-red scar is left which constitutes a permanent deformity. As a chancre progresses toward a cure (and not before this date) the condensation of the tissues may give rise to a condition of firmness, perhaps, resembling induration. In none of these chancres, however, do we find induration such as is observed upon the penis. Pain of a mild, and even of a severe type, is a not uncommon symptom, and it is frequently noted to appear during an exacerbation of the fungoid process.

Phlebitis and lymphangitis of a mild, even decided type, may be an accompaniment of this chancre at some period of its existence.

4. *The Panaritium-like Chancre.*—This form of chancre of the finger is not very common, and is seen with rather more frequency than the scaling chancre of the fingers, and less frequently than the ulcerated nodule or the fungating mass.

The panaritium-like chancre of the fingers usually begins in the integument of the nail margin or in a cut, a fissure, a hangnail, or in some simple inflammatory lesion, very often as a pustule. Whatever may have been the medium of wound-infection, it usually heals quite promptly, unless irritated, and in due time

after incubation the chancre appears as a red spot, which may or may not be excoriated. This spot soon assumes greater depth of colour and of development, and subacute inflammatory infiltration begins, which confines itself pretty closely to the nail sulcus, along which it creeps and develops. The result is that appearances resembling a simple tegumentary felon are soon seen. With the increase of the specific perionychia the distal phalanx begins to swell and the finger becomes distorted. During this period of invasion pain of a mild or severe, deep-seated, and even throbbing character, is often complained of, and the use of the affected finger is impaired or abolished. Usually the swelling increases until the end of the finger presents a bulbous shape like an Indian club, or it may present a shape like a tulip or a violin. The redness, which was at first bright, gradually becomes darker, until in full development the chancre presents a dull brownish-red hue. As the hypertrophic process increases ulceration is usually seen around the nail, to which it may be limited in a crescent-like form. This ulceration usually has an unhealthy, foul surface, secretes a copious, fetid pus, and may be covered in whole or in part with a brownish black or green necrotic film or membrane. The nail rapidly becomes darker, until it is detached as a black looking, foul mass, under which the ulceration has extended. At this time the pain is very severe, the swelling very considerable, and the consistence of the hypertrophied phalanx very firm, and sometimes even hard. There is nothing akin in it, however, to cartilaginous induration. There may or may not be redness in the skin of the second and third phalanges. In this state of full development this panaris-like chancre may remain for a long period without any tendency to heal, and sometimes without any evidence of exacerbation. Under proper treatment, however, it will slowly subside, and in the course of several months the end of the finger may be nearly normal in size. Sometimes it becomes much atrophied and pointed, and the seat of an irregular cicatrix. In most cases the nail is impaired, sometimes wholly destroyed, and sometimes only partially so. Tactile sense and prehension are more or less impaired, and an exquisite tenderness may remain in the member for a long time. This form of finger-chancre may be mistaken for non-specific panaritium, and for the early and later perionychiæ of acquired syphilis. In hereditary syphilis a perionychia presenting points of resemblance to this form of chancre is occasionally seen. Accompanying the panaritium-like chancre a mild or severe phlebitis or lymphangitis may occur. In all cases a doubt in diagnosis can soon be cleared up by the examination of the epitrochlear and axillary ganglia, which commonly within two weeks take on characteristic syphilitic swelling and induration. One finger is usually affected by this form of chancre, sometimes two, and very rarely more.—*N. Y. Medical Record, Jan.* 17, 1891, *p.* 69.

Obstetrics & Gynæcology.

77.—ON THE DIAGNOSIS OF PELVIC INFLAMMATIONS IN THE FEMALE.

By Charles J. Cullingworth, M.D., F.R.C.P., Obstetric Physician to St. Thomas's Hospital, London.

By pelvic inflammations I mean pelvic peritonitis and pelvic cellulitis, and not inflammations of the various viscera contained in the pelvis. These latter will only be dealt with so far as they are concerned in the pathological processes that lead to the affections I have just named.

In the great majority of cases the inflammation begins in the mucous membrane of the uterus, either from septic absorption, or the poison of gonorrhœa, or the infection of tubercle, or simple catarrh, as from getting the feet wet during menstruation. It spreads from thence along the mucous lining of the Fallopian tubes, just as inflammations of the mucous membrane of the respiratory tract or the urinary organs spread along their various portions. There being no ready means of exit for their secretions in the case of the Fallopian tubes, the discharges, whether of mucus or pus, accumulate, and by so doing aggravate the inflammatory process. The inflammation thus tends to spread still further outwards beyond the fimbriated extremity of the tube to the adjacent peritoneum, and a localised peritonitis is thus established, with its focus at the mouth of the tube. The result of this sometimes is promptly to seal the end of the tube, which then becomes distended by the secretions, and forms a more or less distinct tumour. In other cases the peritonitis appears to commence by the sudden pouring out of the morbid secretions from the fimbriated extremity into the pelvic cavity, setting up a sudden and violent pain, followed by all the signs and symptoms of an attack of acute pelvic inflammation. Up to this point the process has been probably painless. Endometritis and endosalpingitis are not characterised by pain, but the moment the peritoneum is reached pain begins; so that what may seem to be the starting point of an illness often is, in reality, merely an indication that the inflammatory process has passed from a mucous to a serous membrane. The inflammation of the uterine mucous membrane may by this time, especially if it be simply catarrhal, have subsided. The canal of the cervix usually allows free escape of the inflammatory secretions, so that an inflammation of the mucous lining of the uterus is ordinarily a much less serious affection than a similar inflamma-

tion in the Fallopian tube, where the readiest outlet is into the peritoneal cavity.

With regard to pelvic cellulitis, there is strong reason to believe that this disease, when it is the primary affection, is always septic, and that it is carried by the lymphatics through the uterine or cervical tissues themselves to the connective tissue immediately adjacent. It is, I know, commonly taught that pelvic cellulitis may be purely traumatic; but the results of antiseptic midwifery and antiseptic surgery show that if a laceration or other wound of the genital canal be guarded from septic infection, no cellulitis will occur. The old idea, that some patients are so susceptible that the mere passing of a uterine sound will set up a cellulitis, puts the blame on the wrong shoulders. Neither a clean sound nor a clean wound ever yet produced a cellulitis.

Bearing the anatomical distribution of the two tissues involved in mind, we may proceed to inquire—(1) What portions of this widely distributed tissue would be first affected when cellulitis starts from the body and neck of the uterus respectively? and (2) In what directions would the inflammation tend to spread? In the case of cellulitis originating from the body of the uterus, the inflammation is transmitted directly through the parenchyma, to the connective tissue between the layers of the upper part of the broad ligament, on one or both sides. Thence it travels outwards towards the lateral wall of the pelvis, or forwards beneath the anterior layer of the broad ligament to the subperitoneal connective tissue in the anterior abdominal wall. In the former case, having reached the lateral wall of the pelvis, the inflammation may pass either upwards along the psoas muscle to the region of the kidney, or, more commonly, downwards and forwards to the anterior abdominal wall, creeping along above Poupart's ligament, to the mass of fat and cellular tissue lying in front of the bladder, and above and behind the pubes. This same spot is reached by the inflammation if it travels forwards instead of laterally. Thence it may continue to spread upwards beneath the anterior abdominal wall, even as high as, or higher than, the level of the umbilicus.

In the case of cellulitis originating in the cervix, the cellular tissue immediately surrounding the cervix is the first to be affected. The inflammation then spreads along the base of the broad ligament to the lateral wall of the pelvis. It may also affect the vesico-uterine cellular tissues in front, or the utero-sacral ligaments behind, in which latter case the rectum will be surrounded with exudation on at least three of its sides, and in some instances will be completely encircled.

We are now in a position to discuss the differential diagnosis of pelvic inflammations.

1. *With Regard to their Etiology.*—Pelvic peritonitis, in the great majority of cases, is secondary to disease of the lining mem-

brane of the uterus, and, for the most part, travels to the peritoneum along the Fallopian tubes. This mode of origin is found in all the cases due to gonorrhœa, and in all the cases due to catarrh. It is also found in most of the cases resulting from tuberculosis, and from septic infection. In a certain number of cases of septic peritonitis the inflammation spreads directly to the peritoneum through the parenchyma of the uterus, by means of the lymphatics or the veins or the connective tissue, but where this is the case there will be cellulitis as well, for the inflammatory process affects all the tissues *en route*. Pelvic cellulitis, on the other hand, when a primary disease, is always septic, and spreads directly outwards from the body or cervix uteri through the parenchyma. There is therefore no involvement of the Fallopian tube.

These considerations have considerable bearing on the diagnosis. Thus, if a case of pelvic inflammation be known to have a gonorrhœal or a catarrhal origin, the tissue affected will be the peritoneum, if it occur after abortion or labour or operation, or the passing of a tent or a sound, that is, if it be known to be septic, it may be either a perittonitis or a cellulitis, or both. If it be tubercular, it will be peritonitic and not cellulitic.

Of course pelvic peritonitis may arise from other than the causes just mentioned—as from the presence of tumours, the rupture of cysts, hemorrhage into the peritoneal cavity, disease of the vermiform appendix, intestinal perforation, &c., but in none of these cases will there be associated disease of the Fallopian tube, except as a coincidence, or any of this hard irregular swelling in the lateral fornix, which is the main element of difficulty in discriminating between pelvic peritonitis and pelvic cellulitis.

2. *As to the Amount of Pain.*—It is generally held, and with truth, that the presence of acute pain points to the pelvic inflammation being peritoneal. Cellulitis, when uncomplicated, is a disease not attended with pain, at any rate, not with severe pain. But we must remember that salpingitis is also a painless affection, and that the sudden onset of severe pain in an attack of pelvic inflammation is not to be taken as marking the commencement of the inflammation, but as indicating that it has reached the peritoneum.

After the acute stage of pelvic peritonitis has passed, the pain is only felt after standing and walking. The tenderness, however, remains, and is apparent on vaginal examination and on coitus. Pain, however, is a most misleading symptom, for it is never so marked in cases of actual disease as it is in some neurotic patients who have no pelvic lesion of any kind.

3. *The Physical Signs.*—In the early days of an attack of acute pelvic inflammation physical examination tells us little or nothing. The vagina is hot and tender, and its vessels may be felt pulsating, and that is all. But in chronic inflammation and in

acute inflammation, when exudation has occurred, the physical signs are usually highly characteristic.

In cellulitis arising from the cervix we find either a uniform hardness and resistance in one or both lateral fornices, with depression of the vaginal roof and partial or complete obliteration of the cervix, or a collar of induration immediately in front, or immediately behind the supravaginal portion of the cervix. In pelvic peritonitis, on the other hand, there is no depression of the lateral or anterior fornices, for the exudation is within the peritoneal cavity, and if it encroaches upon the vagina at all, it does so posteriorly and there only. It will then be felt as a distinct swelling in Douglas's pouch, obliterating the posterior fornix and pushing the uterus forwards, if it is extensive, and forming an elastic tongue-shaped swelling behind the cervix and upper part of the posterior vaginal wall, if the amount of exudation is small.

A similar difference exists in the conditions found on rectal examination. In cellulitis affecting the tissues behind the cervix, including the utero-sacral ligaments, the rectum in that region will be felt to be surrounded wholly or partially with a hard belt of exudation. Whereas an exudation due to pelvic peritonitis will be confined to Douglas's pouch, and will be felt to be entirely in front of the bowel, though it may and generally does bulge into it. The swelling, moreover, will be less hard.

When the body of the uterus is the starting point of a cellulitis, and the broad ligament is the seat of the exudation, bimanual examination will reveal a hard, smooth, flattened tumour by the side of the uterus, sometimes displacing it slightly to the opposite side. This tumour can be moved within certain narrow limits backwards and forwards between the two hands.

Later on, when the exudation has reached the subperitoneal connective tissue of the abdominal wall, it will give rise to a smooth hard swelling beneath the abdominal muscles, occupying either the region immediately above Poupart's ligament, which forms its lower boundary, or the suprapubic region. No such swelling or sense of superficial resistance is found in peritonitis.

What, then, are the characteristic signs of pelvic peritonitis? There is a hard, tender, irregular swelling, felt, on bimanual examination, lying posteriorly in the pelvis, above the vaginal roof and not implicating or depressing it. This mass consists of thickened peritoneum surrounding the thickened Fallopian tube and the ovary, the two latter being matted together by adhesions to each other, to the back of the broad ligament and to other parts in the neighbourhood. The uterus is seldom pushed aside by this mass and does not form, as it were, a part of it, as in cellulitis of the broad ligament. If the uterus is displaced at all, it is displaced forwards unless, indeed, it have been retroverted or retroflexed to begin with, when it will have become adherent.

in its abnormal position. Very often the mass can be felt to extend behind the uterus, and to be adherent to its posterior surface. It is very seldom that any evidence of the presence of a pelvic mass of the kind just described can be obtained on examination of the abdomen. This is only possible when there is superadded an encysted peritoneal effusion, or, as in a case to be related presently, when some of the pelvic viscera have happened to contract adhesions to the abdominal wall.

As time goes on, the hardness and thickening of the peritoneum become, in favourable cases, much less marked; but the viscera once adherent are apt to remain so, and there is generally to be felt a soft irregular mass in the posterior part of the pelvis for the rest of the patient's life, with some amount of fixation of the uterus from adhesions. On the other hand, in cellulitis, the exudation entirely disappears, leaving, in those cases where the exudation was in the substance of the broad ligament, some contraction of the broad ligament, with drawing over of the body of the uterus to the affected side as the only trace. I have not time to go at length into the differential diagnosis of pelvic abscess, but I may just say that these abscesses are by no means all of cellulitic origin. For example, most of those which burst into the rectum are intraperitoneal, being situated behind the uterus, and limited by adhesions. Cellulitic abscesses point, for the most part, above Poupart's ligament, where intraperitoneal abscesses never do, or burst into the bladder, which is rarely the case with encysted collections of pus within the peritoneal cavity. Either form of abscess may burst into the vagina.—*British Medical Journal, Dec.* 27, 1890, *p.* 1469.

78.—ON AMENORRHŒA WITH MENTAL DEPRESSION, AND FROM MENTAL SHOCK.

By G. Ernest Herman, M.B., F.R.C.P., Obstetric Physician to the London Hospital.

Mental depression is given in text-books as one of the causes of amenorrhœa. Some degree of mental depression is a common effect of ill-health, but such mental depression as may be present from anæmia and wasting diseases is not sufficient *per se* to cause amenorrhœa. People in good health are not exempt from anxiety and unhappiness; but mere depression of spirits in a person in good physical health is not capable of causing amenorrhœa. The kind of mental depression which causes amenorrhœa is not simply a "cast of thought"—it is a manifestation of a state of health which affects the whole body: digestion, circulation, and nutrition, as well as the reproductive and nervous systems. I have heard of a mental shock permanently stopping menstruation, but disturbing health in no other way. I have never seen any such case till long after-

wards, when the details of a passing disturbance of health may have been forgotten. In all such cases that I have seen at the time there have been other symptoms besides amenorrhœa. No text-book on diseases of women that I know of describes the clinical features of cases of amenorrhœa with mental depression, and in many of the books such information as is given is followed by details as to local treatment for the purpose of producing menstruation. The view that the absence of menstruation may be the cause of mental symptoms, and that the re-establishment of the flow should be made a principal end of treatment, is as old as Hippocrates, and would thus appear to still find favour. This kind of illness is a quite definite form, the subjects of which often come to an obstetric physician because the illness is accompanied with amenorrhœa, and they or their friends think that the absence of menstruation is the cause of the illness. The cases I am about to speak of may be familiar to many; but the scanty account of them in the ordinary text-books of the diseases of women is my excuse for presuming to say a little about them. The chief complaint is of great depression of spirits. The patient has no delusions or suicidal tendencies, conducts herself rationally, and is not incapacitated for the business of life. With the depression of spirits there is some degree of mental confusion and of incapacity for mental effort. It is not the irritability of neurasthenia, but rather dulness and apathy. There are loss of appetite and constipation; there is some degree of wasting; the hands and feet are cold and damp; there are no physical signs of gross organic disease anywhere. The patients are not anæmic; there are no symptoms of uterine or pelvic disease beyond the amenorrhœa. The symptoms are, in fact, those of melancholia in a slight degree, and there would be no object in calling the disease by any other name than slight melancholia, were it not that the word "melancholia" brings with it the stigma of insanity. These slight cases do not, if they are properly treated, become insane. On the contrary, the condition is curable. As a rule, there is not a clear family history of insanity; but this, I imagine, is because patients with a strong tendency to insanity would become actually insane under the influence of conditions such as bring about the slighter condition of deranged health which I now describe. I see no reason for supposing that the suppression of menstruation has any effect in producing the morbid state. I take the suspended menstruation to be one of the symptoms.

[The narratives of eight characteristic cases are here omitted.]

Taking together all degrees of the condition present in all the cases but the last two, I think it very common. Some depression of spirits occurs in most conditions of debility, and is not peculiar to those which produce amenorrhœa. But in most cases of amenorrhœa, dependent upon chlorosis, wasting diseases, &c., the mental

depression, although present, is not the chief symptom. Cases of pronounced melancholia are frequent enough in asylums. Between these extremes we find cases such as I have related. Other conditions much less common and less important are dwelt upon at greater length in text-books; and what is more important is that the student does not get clear and unanimous guidance as to the treatment. Should the uterus be treated? If the amenorrhœa be the cause of the symptoms it would seem rational treatment to try to stimulate the uterus to activity. But firstly, this group of symptoms often occurs in patients in whom treatment of the uterus cannot be carried out without doing them harm, even should the treatment be effective for the purpose aimed at. Secondly, I can see no good reason for expecting benefit from making the uterus bleed. Cases are common in which menstruation is absent without producing any kind of disturbance of health; and I see no reason for supposing that in these particular cases the suspension of the function should have a different result. The symptoms form a group, all connected together, just as are the symptoms of chlorosis, of phthisis, or of exophthalmic goitre. The absence of menstruation is simply part of a constitutional state. Thirdly, there is no kind of local treatment that will establish menstruation. It is easy by treatment to make the uterus bleed; but uterine hemorrhage is not menstruation. It is possible to carry out local treatment on patients who in consequence of treatment of other kinds, or of the recuperative force of nature, are getting well; and in such cases it may seem as if the re-establishment of menstruation were due to local treatment. But there is no treatment from which the re-establishment of menstruation can be predicted, and this is the test by which in practice we must distinguish between cause and effect and mere coincidence. Change, fresh air, exercise, food, and tonics are the great therapeutic agents. Of these, change is the essential. It is easy to prescribe exercise, but not so easy to get the patient to take it while she remains in her accustomed surroundings. It is easy to order food, but dislike to food is one of the most troublesome symptoms. Tonic medicines are very good, but in this condition are the least important. Complete change, and that to surroundings in which the other indications can be complied with, is the great thing. The patient should be in a healthful place, with cheerful companions able to persuade her to exercise, and to tempt her appetite by the resources of cookery. If this can be carried out recovery will in young subjects almost always follow. But treatment of this kind is not always within the reach of the poor. For them the best change of scene and circumstances is to the hospital. The best substitute for the exercise which the patient will not take is the management of the limbs, and the muscular action provoked by the galvanic current which goes by the name of the Weir-Mitchell treatment.

With this and persistent feeding appetite will return, cheerfulness come back, and when improvement has advanced menstruation will return, without special pains being taken to provoke it. The rubbing and galvanizing of the limbs, I think, are beneficial, not merely for the impression which they make on the mind of the patient, giving her an assurance that something is being done, but also because they tend to wake the patient out of gloomy meditations.—*Lancet, Oct.* 18, 1890, *p.* 811.

79.—ON MEMBRANOUS DYSMENORRHŒA, ITS CLINICAL HISTORY AND TREATMENT.

By F. H. Champneys, M.D., F.R.C.P.L., Obstetric Physician to St. George's Hospital, London.

By membranous dysmenorrhœa we understand painful menstruation, accompanied by the discharge of membranes from the uterus. The frequency of the affection may be estimated from a few facts. Scanzoni says: "The expulsion of such membranes, when it occurs in small pieces, is very often overlooked by the patients; it seems to us, however, to occur far oftener than is usually supposed. We have directed somewhat more attention to this point in the course of the last five months, and found that of twenty-one patients suffering from dysmenorrhœa, fourteen, or exactly two-thirds, observed the discharge of these membranous pieces during menstruation. We must, however, remark that only two of these patients complained spontaneously of this unusual phenomenon, whereas the other twelve discovered it only after we had requested them to take particular notice of it." Again, Dr. John Williams found that of 419 cases of dysmenorrhœa, in which the quantity and character of the menstrual fluid was noted, clots or shreds were noticed in 305, or three-fourths of the total. In one case the membrane was expelled without any appreciable sanguineous discharge. In others it was overlooked till the patient's attention had been called to it. The shreds were found, when examined, to be membranes, and the clots frequently to be membranes also.

Another aspect of the question is the following: "What is the frequency of menstrual membranes in women in general, and do they ever occur in women without dysmenorrhœa?" For the answer to the first question no figures are at present available. It is a matter of great importance, but would be hard to determine. It would not, however, be impossible in the case of large institutions. De Sinéty's observations on "Plusieurs Femmes" are in favour of the usual absence of membranous shreds. It is, nevertheless, known that membranes are, at least occasionally, discharged by women without pain.

Besides uterine mucosa, membranes may be passed consisting of:

(1) Fibrin, (2) blood-clot, (3) coagulated mucus, (4) casts of the vagina, (5) casts of the bladder, (6) exfoliation of uterine mucous membrane in cases of phosphorus poisoning and cholera, (7) foreign bodies, (8) products of conception. As regards 4, we may remark that the morbid process which produces the dysmenorrhœal membrane may extend to the cervix and vagina either continuously or in patches, and that membranes thus formed may show the arbor vitæ of the cervix or the flattened epithelium of the vagina. This has frequently been described without a true knowledge of its nature being ascertained. The great question connected with the subject has been the relation of membranous dysmenorrhœa to abortion, and there seem, as I have remarked, to be still persons who believe that all menstrual exfoliations of the uterine mucosa are due to conception.

Clinical history.—The accounts given by patients suffering from membranous dysmenorrhœa vary greatly. It frequently follows inflammatory attacks, abortion, parturition, the growth of fibrous tumours, and the like. Some, indeed, have asserted that it rarely, if ever, is uncomplicated by such affections, and is essentially secondary to them. While it is true that these affections often complicate or are complicated by membranous dysmenorrhœa, a careful study of a series of cases, such as that of Dr. John Williams, shows plainly that membranous dysmenorrhœa essentially belongs to primary dysmenorrhœa; that is, that it begins essentially, and in the majority of cases, with the establishment of menstruation. The cases recorded by him amount to fourteen, and eleven of these had suffered from membranous dysmenorrhœa from the first or from a very early period. Again, where complications such as those enumerated above exist, it does not follow that inflammations, especially those of the ovaries, are the cause of the membranous dysmenorrhœa, but they may equally be the consequences of it. It is a significant fact that in Dr. Williams' cases oöphoritis was frequently found, but only once under the age of thirty. In cases where membranes are passed from the first, the pain may be superadded later. In an uncomplicated case the history of an attack may be as follows. The patient, either just before or at the beginning of the flow, becomes seized with severe, intermittent, "labour-like" or colicky pains, principally in the hypogastrium, but also perhaps in the whole "genital sphere"—that is, sacrum, groins, thighs, sometimes the bladder and rectum. The flow begins and is generally profuse; the pain is not relieved by it. Usually within the first twenty-four to thirty-six hours the flow stops, the pains become more acute, even amounting to agony. After a few hours a filmy body is expelled, having the shape and size of the uterine cavity, being a triangular collapsed sac with three openings, corresponding to the os internum and orifices of the Fallopian tubes; its outer surface is shaggy

and villous, its inner surface smooth, marked by sulci and small holes (the openings of the uterine glands). Its cavity does not generally contain blood. With the passage of the sac, if entire, the pain may entirely cease, and the patient feel a sense of such relief as to assert that the end of the flow, if not the happiest time in her life, is still that time at which her sensations are most comfortable. If the sac (as is more common) is discharged in two or more pieces, the flow stops and the pain increases before the discharge of each, to be relieved by its passage. During the expulsion of the sac the canal often dilates. Many deviations may be found from this type; there may be intermenstrual pain, and the pain may not be relieved completely by the discharge of the membrane. In such cases there are generally complications. An access of pain one or two weeks before the flow has been often observed. The points in which it differs from ordinary spasmodic dysmenorrhœa would seem to be chiefly the abundance of the flow, and the fact that the pain is not relieved by the flow, but only by the passage of the membrane. This association is important as connecting the pain with the membrane. The patient is generally, but not always, barren. The pain usually persists, in spite of treatment, till the menopause. In rare instances it affects families.

The cause of the pain is: (1) Colic excited by a foreign body, (2) colic super-excited by the passage of this foreign body over a specially sensitive part.

The membranous structures from which a differential diagnosis has to be made are, as already mentioned: (1) Fibrin, (2) blood-clot, (3) coagulated mucus, (4) casts of the vagina, (5) casts of the bladder, (6) exfoliation of uterine mucous membrane in cases of phosphorus poisoning and cholera, (7) foreign bodies, (8) products of conception.

Treatment.—The affection is generally declared incurable. Drugs have been tried and discarded, local treatment has failed. Electricity, if successful, would have been oftener practised. It seems to me, however, that one or two words still remain to be said on this matter. Treatment may be directed to two conditions —(*a*) the morbid uterine mucous membrane; (*b*) the pain. The pain, as I have endeavoured to show, is probably uterine colic, and this, again, is the cause of another variety of dysmenorrhœa —spasmodic, neuralgic, mechanical, obstructive dysmenorrhœa. The treatment which often relieves the pain, at any rate temporarily, in both is dilatation, of which I shall speak elsewhere. The pain itself is not, in my opinion, merely an annoyance to the patient, for, taking pain in this case as equivalent to colic, colic is bad for the uterus; it is associated with irritation, the intense contractions lead to hypertrophy in many cases, and the irritation of the uterus may lead to its spreading upwards to the uterine

appendages, where its treatment as inflammation is far more difficult. Therefore we should, if possible, treat the uterine colic. Measures to increase the flow, such as hot foot baths, are less indicated in this case, for the flow is generally profuse and the pain is not immediately relieved by it, as it generally is in spasmodic dysmenorrhœa. Among drugs may be mentioned guaiacum and sulphur, antipyrin (cautiously used, and probably with a diffusible stimulant), and an old remedy which has certainly, in these days of experimental pharmacology, been unjustly discarded—namely, castoreum. With regard to local measures, temporary relief has followed scraping the uterus shortly before a menstrual period. I should feel tempted to try this, not once, but repeatedly, with an irrigating curette, flushed with antiseptic solution, preceded by dilatation. Division of the cervix has given temporary relief. Its action is, in my opinion, to relieve the colic. In my opinion, also, it should never be done. Removal of the appendages has been practised; in one case (Mr. Lawson Tait's) with success. The other side of the picture is furnished by Mr. Doran, who refers to a case followed by intense dysmenorrhœa. The treatment of membranous dysmenorrhœa certainly is a most unhappy problem; not even pregnancy, going to full time, cures it. If it is to be cured, and if complications are to be avoided, our attempts must be made early.—*Lancet, Dec.* 20, 1890, *p.* 1313.

80.—ON SPASMODIC DYSMENORRHŒA—ITS HISTORY, PATHOLOGY, AND TREATMENT.

By F. H. Champneys, M.D., F.R.C.P.L., &c., London.

In the great majority of cases spasmodic dysmenorrhœa is primary; that is, it begins with the onset of menstruation. The typical relation of the pain to the flow is that the pain precedes the flow by a few hours, or by a day or two, and lasts some twenty-four to forty-eight hours; that is, until the flow is well established, when it much diminishes or ceases. The situation of the pain is, practically, in the womb, or it is referred externally to the lower part of the hypogastrium, just above the pubes. The character of the pain is intermittent, or varies in intensity, and, typically, it comes in pangs. It is described as "labour-like," "cramp-like," "forcing," &c., and is, in fact, uterine colic. The duration of the pain, as above said, is generally from twenty-four to forty-eight hours, till the flow is well established. The intensity of the pain varies from slight pain to agony, and its manifestations may include groaning, rolling on the floor, vomiting, or fainting. In some cases pain for an hour or two will cause a shock which will last for the rest of the month. The character of the flow is scanty, especially during the time when the pain is most intense. The blood is often mixed with clots, which on examination are found to be the mem-

branes of membranous dysmenorrhœa. The effect of time on the disorder is that the pain increases, and in cases of unmarried women who are not treated, ceases only with the menopause. The effect of marriage is, in itself, generally to increase the disorder. The patients are often sterile, and in lack of pregnancy generally get worse and worse. If pregnancy ensues, and especially if it ends in a full-time natural delivery, the patient is usually permanently cured. To nearly all these typical characteristics there are, however, exceptions. The disorder may not be primary, but may be acquired, in some rare instances, in women who have rapidly borne many children. This, which seems inexplicable, really throws light on the affection, which is essentially a colic, and may ensue in worn-out uteri, just as after-pains may also affect such uteri, the affection in both cases being, as has been justly insisted on by the late Dr. Matthews Duncan and others, of the same nature. In other cases it may follow general or local exciting causes. In some cases the pain may not precede the flow, and may not be relieved by the flow. This is especially the case in membranous dysmenorrhœa. The situation of the pain may be inguinal, or like that when the appendages are inflamed, or may radiate to the whole of the pelvic viscera, especially in membranous dysmenorrhœa. It must be remembered that transference or radiation of sensation is not very rare in the pelvic organs, that the passage of a sound may cause typical ovarian pain, and that pressure on an ovary may cause pain in the opposite ovarian region. The character of the pain is not always intermittent, it may be continuous; perhaps because one spasm overlaps another. In rare cases it is intermenstrual, or occurs where there is no flow of blood at all. Again, in rare cases, the flow is not scanty, and may even be profuse, especially where it is accompanied by the discharge of membranes. The effect of time is sometimes in the direction of relief, with improvement of the general health.

Until the last few years the question of the pathology of spasmodic dysmenorrhœa was considered settled by a very lucid and intelligible explanation known as the mechanical system of uterine pathology. The theory of this pathology was that it was owing to obstruction to the escape of the menstrual fluid, due to flexions of the uterus or to stenosis of some part of the canal. Other elements are cited, in the shape of the texture of the uterine tissue and disorder of the uterine circulation by flexion. They are thus summarised:—(A) Flexion of the uterus causing obstruction. (B) Stenosis, congenital, due to swelling of the mucous membrane, fibroids, polypi, hypertrophy, increased flow of blood. (C) Chronic congestion of the uterine walls, due to flexion.

[Having exhaustively criticised all these, as well as the arguments from the results of treatment, Dr. Champneys goes on to say:]

We have now gone through the whole series of statements in

favour of the mechanical theory of dysmenorrhœa, and have found that most of them are at variance with facts as ascertained, while many of them are founded on interpretations which are capable of being reviewed from another side, and are most probably erroneous. It seems to me that had the facts as regards flexions, stenosis, and the uterine circulation been ascertained before propounding a theory, the mechanical theory of dysmenorrhœa could never have been propounded. To ascertain the facts that have now rendered it untenable has been the work of years; but this is not the only instance in medicine of the labour entailed on innocent persons by the promulgation of a theory on insufficient grounds. Some of the most important work has appeared in the *Archiv für Gynäkologie*, but it is curious to read, even quite recently, the utterances of Germans, who cannot be ignorant of Vedeler's papers, as if the facts were still debatable, or as if they had appeared abroad instead of in the principal place of resort for such papers in the whole of German current literature. I am inclined to think that, in matters of science, Englishmen live less on an island than other people. I trust that in the above remarks I shall not be interpreted as questioning the good faith of the theorists, but only as criticising their scientific methods. It is true that no theory can be developed without the aid of the imagination, but all ideas should be kept in limbo until they have been subjected to the severest criticism by their parents. It is also true that what is true is generally simple; but the converse—what is simple is generally true—by no means holds; and the mechanical theory seems to be an instance of such logic.

It remains to state what I believe to be the truth as regards the pathology of spasmodic dysmenorrhœa. Let us marshal our facts. Spasmodic dysmenorrhœa is pre-eminently an affection of the immature uterus. The pain is certainly colic; it often precedes the flow, and sometimes occurs regularly without any flow at all. Its intensity varies inversely to the abundance of the flow. It is often associated with nervous phenomena in other parts of the body, especially neuralgic headaches. It is essentially a neurosis, and has motor phenomena (colic) and vaso-motor phenomena (scanty or greatly varying flow); some would go further, and add secretory phenomena, such as catarrh, and quote the analogy of asthma. But, while spasmodic asthma undoubtedly has points of resemblance with dysmenorrhœa, the question of secretion, in our present knowledge of the monthly changes in the uterus, cannot be pressed. The association of spasmodic dysmenorrhœa with sterility cannot be one of mere dimensions; for if, as we have seen, the smallest cervical canal can transmit the menstrual fluid without sensible hindrance, much more can it admit the microscopical spermatozoa. The association of pain with sterility and their simultaneous disappearance points, in my opinion, to a vital and not arithmetical solution. The rare cases in which, during the sexual orgasm, spontaneous changes have

been observed in the cervix uteri, coupled with other phenomena, which have been so elaborately and scientifically discussed by the late Dr. Matthews Duncan in his Gulstonian Lectures on Sterility, throw light on this difficult subject, and make it probable that the peristaltic movements of the uterus, implied in what Reil calls "polarity," have functions connected not only with menstruation, but also with impregnation. Lastly, the remedies for spasmodic dysmenorrhœa throw some light on its nature. The relief produced by encouraging the flow, as by hot footbaths, tells in favour of vaso-motor spasm, and strongly against the mechanical theory. If that were correct, the increase in the flow would make the escape of the fluid many times more difficult and more painful; but the facts are just the other way. Such drugs as castor (an old remedy lately revived and left as a legacy by the thoughtful and trustworthy Litzmann), antipyrin, and nitro-glycerine tell the same tale, and so do so-called diffusible stimulants, especially gin. Of course, opium will drown the pain, but the action of the above drugs is not narcotic. Ergot acts by producing tonic contraction and stopping the colicky contractions. Its action here is the same as in after-pains. The *rationale* of the treatment by dilatation has already been discussed. The os internum is the sensitive point for the uterus. By stretching this, years of dysmenorrhœal agony are concentrated into a few minutes; the irritability of the uterus is exhausted; it rests, and has a chance of starting afresh—a chance it may or may not accept. The division of the os internum acts in a similar way to the division of other parts in a condition of painful spasm by setting the irritated fibres at rest. It must, however, be remembered that uterine colic is not associated with spasmodic contraction of the os internum, though it may be associated with a condition of tetanus without narrowing of the canal, as in after-pains. The great remedy is pregnancy and parturition—a remedy not within the reach of all; for we must remember that sterile marriage increases the pain. Still, the association of dysmenorrhœa with sterility in a married woman gives us a fair hope that, in the absence of any discoverable impediment, the cure of the dysmenorrhœa may be followed by that of the sterility. We must, however, bear in mind that the vast majority of the causes of sterility are beyond our discovery, and still more beyond our control. This subject is the last on which a man has any right to entertain crude and mathematical notions, the problem being of the greatest complexity and of the utmost delicacy.

Treatment.—It will be impossible to do more than indicate principles of treatment. These comprise treatment between and during the periods. In the first place comes the question of general mode of life. Generally speaking, this should not be too sedentary. Plenty of healthy exercise, and especially riding, will promote the circulation through the pelvis, and give the generative organs a

better chance of developing. In the same connexion must be mentioned the maintenance of the regular action of the bowels by laxatives, and particularly salines. This has the same purpose; to avoid stagnation of blood in the pelvis. It is probable that of all drugs in the treatment of chronic pelvic disorders, Epsom salts are the most valuable. Indeed, with constipation, none of this class improve, even if treated by the newest alkaloids. The diet should be simple and wholesome; in fact, the patient should go into a sort of gentle training. During the pain most patients are better at rest, or even in bed; but some find their pain relieved by exercise, even unusually active. Pessaries (except the Hodge's pessary in a few cases of descent with retroflexion, and except the stem pessaries) are, I believe, absolutely useless. The stem pessaries are not always useless, but are dangerous, and should not be used. Incision of the os externum is, I believe, useless; incision of the os internum is not always useless, but is highly dangerous. Among drugs, guaiacum, with or without sulphur, is sometimes useful, taken regularly in milk as a powder, or as a confection. Castoreum sometimes abolishes the spasm completely. I have known cases treated by nearly, if not quite, all the usual drugs unsuccessfully get well suddenly as soon as castoreum was given. It is best given in the form of tincture, from twenty to thirty drops three or four times daily during the pain, with or without a few drops of tincture of nux vomica. A hot foot bath, and a good glass of hot gin-and-water at bedtime, at the beginning of the pain, is an old and valuable remedy. It probably acts by relaxing the vaso-motor and muscular spasm. The gin should be given once a month only. Ergot is sometimes useful by causing tonic contraction, and stopping what Reil would call the irregular, fibrillar, streaky, non-peristaltic uterine contractions. Dilatation is the last resort. It is generally contraindicated in the presence of inflammatory signs in the pelvis, even if old. It must be carried out with all antiseptic precautions, and is not, in my opinion, so trivial a proceeding as to be safely done in the consulting-room. The pain also is often agonising, and is far greater than that caused by some operations for which anæsthetics are habitually given. For these reasons I prefer to perform dilatation at one sitting under anæsthesia, and with full antiseptic precautions, after ascertaining that the genuine dysmenorrhœal pain is evoked by dilatation of the os internum, a point which greatly improves the prognosis. Nothing can be promised, for dilatation may give temporary relief, permanent relief, or no relief at all. Still, considering the slight risk, I use it rather freely, for there are cases which seem most unpromising, and yet are cured by it. I remember one such case, a patient who had suffered for years, had had many treatments, including division of the cervix, which was followed by perimetritis, completely matting the posterior part of the pelvis. The pain was not only menstrual, but almost continu-

ous. Her medical man in the west of England sent her to me to see what I could do for her. In spite of the very unfavourable conditions I dilated her cervix, and she lost from that time both menstrual and inter-menstrual pain. Her medical man wrote to me some time later to suggest that as she was so much better he might dilate the cervix again. I advised him to let well alone, and he took my advice. The best time is about midway between the periods. Hegar's dilators do very well, or we can use the metallic bougies. The dilatation should not be pressed when great resistance is felt, or the cervix may be lacerated, even with fatal result. The object is not to enlarge, but to stretch the canal. But this stretching is generally not satisfactory unless the largest bougie varies from the size of a cedar pencil to that of the tip of the little finger. Two- or three-bladed dilators are bad instruments; they stretch the canal unequally, and are liable to tear it. They are out of fashion in England, though not apparently in America and on the Continent. (From Dr. Champneys' Harveian Lectures.)—*Lancet, Dec.* 27, 1890, *p.* 1369.

81.—ON THE SYMPTOMS AND SIGNS OF DISEASE OF THE UTERINE APPENDAGES.

By William Duncan, M.D., F.R.C.S., Obstetric Physician to the Middlesex Hospital.

The symptoms of diseased uterine appendages are essentially two, namely, pain and menorrhagia. The pain is variable. In some cases it may only come on at the periods, and then be quite bearable; in others the dysmenorrhœa amounts to intense agony. As a rule in these cases there is more or less constant pelvic pain, which increases in severity for about ten days, or a fortnight before the period comes on, reaching its height at this time, and diminishing after the flow has been fully established. The pain is referred to the side most affected; it is often described by the patient as of a gnawing, tearing character, shooting through to the back, and perhaps down the thigh to the knee. In some instances it has been described to me by patients as feeling "as if someone had seized hold of their insides and was trying to tear them out." In my experience, the greatest amount of pain is felt as a rule in those cases where from extensive pelvic peritonitis the ovaries and tubes are matted down in the pelvic cavity; in these cases a vaginal examination may reveal nothing beyond some impaired mobility of the uterus, with tenderness on pressure. Usually in chronic disease of the appendages there is pain on coitus, and this may be of all degrees of severity. Not a few of my patients have told me it was so intense that they have been compelled to lead a single life for months.

The hemorrhage also varies in amount. In most cases the loss

at the period is increased. Women will say that their periods, instead of lasting four or five days, now go on, perhaps, for a fortnight; that whilst half a dozen napkins used to be sufficient, now they require eighteen to twenty-four. Others will say with regard to their periods that "they are hardly ever free from them." I believe the loss is greatest in cases of chronic ovaritis and salpingitis; but where the tubes are dilated with serum or pus there does not appear to be much alteration in the amount lost. Another symptom to be remembered is (as already mentioned) the occasional discharge "in gushes" of water or matter in those cases of intermitting hydro- or pyosalpinx.

The physical signs are of the greatest importance. There is a good deal of difference of opinion respecting them; some able observers never (or hardly ever) find diseased tubes and ovaries on examining their patients, whilst others are constantly diagnosing them. In many instances the signs are sufficiently obvious on making an ordinary bimanual examination, whilst in others it is essential to give an anæsthetic and to examine *per rectum* as well as *per vaginam*.

Can a normal ovary be palpated when in its usual situation? I answer, unhesitatingly, Yes, in the majority of cases, where the abdominal walls are thin and lax; not only so, but atrophied or congenitally ill-developed ovaries can be made out; so also can the Fallopian tube, especially near its uterine end. When the tube is thickened from chronic salpingitis, and is about as large as one's little finger, it feels not at all unlike a varicocele in the male, giving the same sensation to the finger that a bag with a few worms inside does. Not infrequently the ovaries and thickened tubes are prolapsed into the pouch of Douglas, when their detection is possible even to the *tactus non eruditus*.

When enlarged ovaries and tubes are matted together by old pelvic adhesions, they give rise to a firm, roundish, or elongated tumour felt in one or other posterior quarter of the pelvis, and perhaps extending somewhat behind the uterus. It is only within comparatively the last few years that the pathology of these tumours has been rightly understood; in my student days they were almost invariably described as cases of pelvic cellulitis in one or other broad ligament, but since abdominal section has been more frequently performed it is clearly proved that cellulitis does not exist except as part of a septicæmia or as secondary to a pelvic peritonitis. Those tumours, then, which are detected at one or other side of the uterus, and which do not depress the vaginal roof or materially displace the uterus, are in the vast majority of cases the result of pelvic peritonitis following upon chronic disease of the ovaries and tubes, whereby these organs are matted together, and to the different structures in their vicinity, such as broad ligament, uterus, omentum, and intestines. When a hydro- or

pyosalpinx exists, it feels (in a typical case) an elongated, tortuous, elastic swelling, extending from the side of the uterus outwards in the broad ligament, and backwards into Douglas's fossa. In many cases, however, the dilated tube is roundish instead of being elongated; this is probably due to adhesions. On the other hand there may be a large hydro- or pyosalpinx which the most careful examination under an anæsthetic fails to detect; this is due, I believe, to the fact that the dilatation is "not a tense one." In two cases on which I operated for disease on one side, I found in each, after removing the affected parts on that side, a large dilated tube on the other, which had previously escaped detection. When the ovaries and tubes are matted to the pelvis by adhesions, examination *per rectum* is very important; by this means, also, we can ascertain whether prolapsed ovaries are free or adherent.

The prognosis depends on the conditions present in any individual case; a woman with a pyosalpinx is in constant danger of its setting up acute and fatal peritonitis; even a hydrosalpinx may do the same, although the risk is much less. In most of the other conditions, whilst they are not necessarily fatal, they, as a rule, render life one long state of chronic invalidism, accompanied by greater or less suffering, which may certainly be alleviated by medicines, but which, I fear, can usually only be cured by abdominal section. When this operation is resorted to, the prognosis is very good, as seen in the thirty cases recorded, where there was only one death, and this from the distressing accident of slipping of the pedicle ligature and fatal secondary hemorrhage. The ultimate prognosis as to sound health is also good, but it must not be forgotten that the full benefits of the operation are not usually felt for several months after, as the patients have to pass through the sympathetic disturbances incidental to the bringing on of the menopause.—*British Medical Journal, Jan.* 17, 1891, *p.* 103.

82.—ON THE TREATMENT OF CHRONIC DISEASE OF THE UTERINE APPENDAGES.

By Alban Doran, F.R.C.S., Surgeon to the Samaritan Free Hospital, London.

Throughout this communication I will, except when I specify to the contrary, speak of chronic inflammatory changes in the Fallopian tubes and ovaries as one complaint, "disease of the uterine appendages." The specimens now exhibited serve to explain the principal varieties of this affection.

The different methods of treatment more or less in vogue are:—

1, Rest; 2, Electricity; 3, Massage; 4, Curetting of the uterus and Emmet's operation; 5, Catheterism of the tubes; 6, Vaginal puncture of cystic tubes; 7, Abdominal section, which includes the following subdivisions; (*a*) The complete operation, removal

of the tube and ovary, or oöphorectomy; (*b*) drainage of a hydrosalpinx; (*c*) breaking down of adhesions and drainage; (*d*) essentially "incomplete operations," or simple opening of the peritoneum; (*e*) plastic operations on the tube, or salpingostomy.

Treatment by rest often proves successful if intelligently carried out. The action of drugs must be carefully watched in each case. Thus sulphate of magnesia is very beneficial in most cases, yet others cannot tolerate it. In one case, at least, under my care it set up tympanitic distension of the abdomen with rise of temperature. I witnessed precisely similar symptoms after giving a dose of the same salt to an ovariotomy patient on the eighth day. Intimate intestinal adhesions had been broken down during the operation, and it is evident that the disturbance to the damaged intestines set up by the saline aperient caused the grave complication which followed its administration. In the first case, where the appendages were diseased, intestinal adhesions were probably disturbed as in the second. Both did well when enemata were substituted for aperients. The tampon causes irritation in many cases. The sound had best be dispensed with, and the greatest care must be taken not to make the patient a chronic invalid.

Though electricity may check the growth of fibroids, or may even cure gonorrhœa by killing the gonococci (Prochownik), it is hard to understand how the current can open tubes, clear adhesions, and remove the products of inflammation.

Massage is open to great objections when practised on the genitals, and it is absolutely dangerous when the tubes feel in the slightest degree dilated or the ovaries uneven, that is, in almost the entire class now under consideration. Profuse purulent discharge from the uterus has followed massage, and may signify that pus has found its way out of the tubes. The dangers of deliberately submitting a suppurating tube to treatment by massage are, however, self-evident.

The curette is extensively used abroad, and occasionally in this country. That instrument is properly intended for the cure of endometritis. Foreign authorities declare that endometritis infects the tubes and thus sets up salpingitis, which extends to the ovaries. The cure of endometritis by the curette, by removing the cause will, according to these authorities, cure the disease of the appendages. This principle of treatment is purely theoretical. The curette seems to do good in pure endometritis. Should disease of the appendages be present, few proceedings can be more dangerous than dilatation and scraping. Tissues are thereby irritated in the neighbourhood of inflamed pelvic structures, all for an unsettled theory. The curette has been the direct cause of severe inflammation of the appendages, which some authorities believe that it can cure.

Emmet's operation as a remedy for disease of the appendages is also based upon pure theory. Catheterism of the tubes is difficult,

if not impossible, to perform, and dangerous or useless if really effected. Vaginal puncture of the cystic tube has been advocated by Leopold, who notes that even if the tube be not completely emptied by the puncture, its muscular coat can once more act, just as the uterus contracts if the membranes be ruptured and the waters escape during pregnancy. This proceeding, however, involves operating in the dark, and cystic ovaries, or even fœtal sacs, have been perforated by mistake.

Oöphorectomy is the best operation in a large class of chronic cases where subacute seizures occur frequently and at gradually shortening intervals, and where careful bimanual palpation proves the existence of a mass on one or both sides of the uterus. The tube and ovary are then degenerate and useless. The more cystic they become the more discomfort they cause, and the more probably will they form adhesions to intestine and omentum. The health suffers, the patient is crippled, and, if poor, incapacitated from earning her bread. Pyosalpinx, a not infrequent complication, is in itself a source of danger to the patient. Granting that rest is insufficient to relieve the patient, abdominal section is more satisfactory, even safer, than the palliative measures above noted.

As a rule, oöphorectomy for chronic disease of the appendages is followed by speedy convalescence. Unfortunately, a permanent cure is not so frequent. Mental symptoms occasionally follow double oöphorectomy. The cases where the stump suppurates are particularly unsatisfactory. Fistulous tracts open, close, and reopen in the abdominal wound for months, discharging thin pus. Such cases find their way to the consulting rooms of others, or to other hospitals than the institution where the operation was performed. The operator hears no more of them, and he or the hospital registrar records them in perfect good faith as "cures." A larger minority suffer from a continuance of the pains which preceded the operation, probably on account of intestinal adhesions, or through irremovable inflammatory products which press on nerves. The ligatures certainly set up trouble in some cases.

A pure hydrosalpinx is often very hard to remove, yet it is a source of great pain, especially during menstruation, when the cystic tube becomes tender and its capsule congested. I have found incision and drainage very efficacious in removing the cause of pain. A considerable part of the cyst and capsule should be trimmed away, so as to prevent any chance of closure and refilling. The great advantage of this practice is that no ligatured stump is left behind in the pelvis. Most satisfactory cases have occurred in my own practice.

Another operation, less radical than oöphorectomy, and yet often effectual, is the simple breaking down of adhesions and subsequent drainage, the appendages, relatively healthy, being left behind. The operation is not always easy; and we have not the

advantage of reliable statistical records. We hear much about consecutive cases of oöphorectomy, yet little about this simple breaking down of adhesions. Men do not like to record what may be set down as a "partial operation." They fancy it may be reckoned as a failure. The most honest operator in these cases usually sets to work with a fixed idea that the tube or ovary is at the time the chief or even sole cause of trouble. The cutting away of a tube and ovary after ligature is definite, and in the amputated part there is something to show for one's trouble and for the risk to which the patient is exposed. In so many operations it is right to take something away that surgeons very naturally tend to believe that it is wrong to take nothing away. The patient, too, often averse to the prospect of amputation before she submits to any operative proceeding, is often dissatisfied if she learns afterwards that nothing has been removed. Hence the surgeon must clearly explain beforehand, in all cases where he intends to operate, that the abdominal section is intended to set right what is wrong, and is not necessarily undertaken in order to remove anything. The operation for breaking down of adhesions is not easy, and it requires some experience to know what adhesions may safely be sundered and what should be left alone ; and to recognise if the appendages may safely be left behind. A free separation of adherent coils of intestine high above the pelvis is dangerous and useless, and a dilated tube and an enlarged cystic ovary will be a greater source of danger and pain after they have been disturbed than before. The breaking down of adhesions, as a distinct operation, always necessitates flushing of the peritoneum and drainage, for capillary oozing is free in these cases, and suppurating foci are sometimes opened up between coils of intestine. The chief advantage of this proceeding is that there is no fear of the grave mental symptoms which sometimes follow double oöphorectomy.

A simple abdominal incision has sometimes proved sufficient to cure all the indications of disease of the appendages, even the most characteristic objective symptoms. This is often seen when the operator finds numerous intestinal adhesions which he fears to disturb. The same result may follow where the patient suffers great pain beforehand, although no visible or tangible pathological lesion is detected when the abdominal cavity is opened. Statistics on these cases are wanting, for evident reasons explained in relation to the operation for breaking down adhesions. The explanation of these cases is difficult. I find that where chronic peritonitis is present incision of the walls most frequently does good, especially when the parietal peritoneum is much thickened, as in a case under my care a few years ago.

Skutsch and Martin have saved dilated tubes by a plastic operation termed salpingostomy. A hole is cut in the end of the tube, and the serous and mucous coats are then sewn together. This

operation may have a great future, but it is inadmissible when suppuration exists, and is almost certain to fail when active adhesive inflammatory processes are in progress, since the new opening must soon be covered up by fresh bands of lymph.

Removal of diseased appendages should be avoided whenever possible. In long-standing neglected cases it is hardly avoidable, yet even then a less severe operative measure, already indicated, may suffice. Practitioners and nurses are growing more and more skilled. Hence neglected cases are becoming rare; unfortunately certain circumstances preclude the chance of their total extinction. I hope, on a future occasion, to be able to analyse a series of cases within my own practice, especially in respect to the relative results of complete and incomplete operations.—*British Medical Journal, Jan.* 17, 1891, *p.* 106.

83.—A DESCRIPTION OF PYO- AND HYDRO-SALPINX.

By J. Bland Sutton, F.R.C.S., Assistant Surgeon to the Middlesex Hospital.

Pyo-salpinx.—In severe cases of salpingitis after occlusion of the abdominal ostium, accompanied, as is usual, with stricture of the uterine end of the tube, the pus is as securely locked up in the tube as it would be in a deep-seated abscess, and it follows the course of an abscess. The walls of the tube, stretched by the accumulating pus, gradually thin, and the inflamed tube becomes adherent to surrounding structures—ovary, uterus, rectum, intestine, or broad ligament. The wall of the tube continues to thin until, on some slight exertion, it bursts. If the pus be discharged into the peritoneal cavity, it establishes rapidly fatal infective peritonitis. Right pyo-salpinx is very prone to open into the rectum. When a pyo-salpinx lies in contact with bowel, the pus it contains becomes abominably fetid, due to osmosis of the intestinal gases. The relation of pyo-salpinx to the rectum must be studied in connection with tubo-ovarian abscess. It must be borne in mind that the normal relation of the tube and ovary are somewhat different from the conventional position represented in anatomical and midwifery text-books.

The first effect of salpingitis upon the ovary is to cause thickening of its capsule, and if lymph is effused upon its surface this may organise and extensive perimetritic adhesions result. The effects of this thickening of the capsule are twofold. At first it prevents the rupture of ripe ovarian follicles, and the tension gives rise to considerable disturbance and causes pain; and as the enlarged follicles cannot discharge their contents, it naturally follows that on section an ovary which has long been the seat of peri-oöphoritis will be found largely converted into cystic spaces, and two or more may become confluent and form a cyst the size of a walnut.

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As such a cyst enlarges and makes its way by absorption to the surface, it not infrequently comes into relation with and adheres to the dilated pus-containing ampulla of the corresponding tube, which has been brought in contact with it through the restraining influence of the tubo-ovarian ligament. Except that the tube and ovary are in contact, no further change ensues in the majority of cases, but not infrequently absorption takes place, and the dilated ampulla of the tube will communicate with an enlarged follicle or cyst in the ovary and thus give rise to a tubo-ovarian abscess. The communication in such cases is usually small, and barely admits a probe. I have had many opportunities of dissecting such specimens, and find that when a tubo-ovarian abscess communicates with the rectum it is the portion of the abscess lodged in the ovary that invariably becomes the seat of fistula. When a pyo-salpinx or a tubo-ovarian abscess communicates with the rectum, the pus is discharged by way of the rectum at irregular intervals, and is accompanied by great improvement in the patient's symptoms.

Anatomical evidence indicates that when the infective qualities of pus are not very great, a pyo-salpinx may resemble a chronic abscess, and give rise to few symptoms. It is this form of pyo-salpinx which I believe becomes slowly and passively dilated with fluid, and is transformed into a hydro-salpinx. My reasons for believing that as a rule a hydro-salpinx is a late stage of pyo-salpinx may be summarised thus:—1. Hydro-salpinx is not found in acute cases. 2. In many chronic cases hydro-salpinx is found on one side of the uterus, and a progressive pyo-salpinx on the other. 3. The ampulla of a tube will sometimes be dilated into a hydro-salpinx, and the isthmus contain pus. 4. The fluid contained in a hydro-salpinx will sometimes be colourless, but the recesses of the tube contain caseous material and cholesterine. 5. The dilated tube in hydro-salpinx may, as in pyo-salpinx, communicate with an ovarian follicle to form a tubo-ovarian cyst. Tubo-ovarian abscesses and tubo-ovarian cysts must not be confounded with ovarian hydroceles.

Hydro-salpinx.—The persistent course of salpingitis leading to occlusion of the ostium, though very frequent, does not occur in all cases. Many mild attacks may be conveniently described as "catarrh of the tube," and like a nasal or gastric catarrh subside and leave no trace. If the inflammation is sufficiently intense to seal the ostium permanent damage results, and if, as is so commonly the case, both tubes are affected, they remain throughout life functionless, and often a source of grave danger. In cases of salpingitis sufficiently severe to occlude the ostium the tube is, after the subsidence of the inflammation, in the condition of a blocked ureter; there is no escape for the fluid which is excreted by the glands in its walls, or for the fluid which passively exudes into its cavity. It consequently forms a cyst by retention. The

contained fluid is more or less colourless; sometimes it has a greenish tinge, due to the presence of cholesterine. Frequently it is the colour of chocolate. This condition is termed "hydro-salpinx," and may be defined as a Fallopian tube, distended with fluid in consequence of inflammatory occlusion of its abdominal ostium. The changes which arise in the occluded and distended tubes are such as we are familiar with in the case of the gall-bladder, vermiform appendix, or pelvis of the kidney, when they become cysts by retention. The first effect of the accumulating fluid upon the walls of the tube is to stretch them; this continual pressure induces atrophy, the pathological sequence. The epithelium and mucous membrane become thin, lose their character, until nothing but a thin-walled transparent cyst remains, with delicate ridges, representing all that is left of the longitudinal plicæ of the tubal mucous membrane. The shape of a typical hydro-salpinx is very characteristic, and though not invariable, is fairly constant, like that of a legume with somewhat blunt ends; the ovary always occupies the concave border of the legume, and the bent shape of the cyst is doubtless due to the traction exercised by the tubo-ovarian fimbria or ligament. In some specimens the situation of the ostium is indicated by a depression, from which a series of folds radiate, reminding us of the ridges and furrows on the face of a stump after a circular amputation through the thigh or arm. In hydro-salpinx the tubes rarely attain a large size. This is due to the fact that as the tube distends the mucous and muscular coats atrophy. Examples of hydro-salpinx have been described in which the tumour was mistaken clinically for an ovarian cyst; but these specimens will admit of a different explanation. The largest examples of hydro-salpinx which have come under my observation have not exceeded six inches in length, with a diameter of three inches. The walls of these cysts were so thin that the fluid probably leaked through them in the same way that it exudes from a very tense ovarian cyst with attenuated parietes, and is gradually absorbed by the peritoneum. So thin are the walls in some of these hydro-salpinges, that even when very carefully manipulated during operation they rupture; and it is exceedingly probable that these dilated tubes may cure by spontaneous rupture, the cyst walls subsequently atrophying. We know too well that such an event terminates the course of a pyo-salpinx, because it sets up fatal peritonitis; but the fluid in a hydro-salpinx would be tolerated by the peritoneum in the same way that it tolerates fluid from parovarian cysts when they spontaneously rupture. My reasons for such an opinion are founded on the following evidence. I have had many opportunities of making post-mortem examinations of the bodies of prostitutes, many of them having led a life of vice of the lowest form. In most of them double hydro- or pyo-salpinx existed. In three instances in which I examined the bodies

of harridans I have found one or both Fallopian tubes represented by an impervious cord and the ovaries atrophied and unrecognisable. This induces me to believe that the frequency of tubal disease between the age of twenty and thirty-five years and its relative rarity after the fortieth year is to be accounted for by the fact that, if the individual survive the dangers incident to an inflamed and distended tube the diseased parts atrophy.

It is well known that ovarian cysts are prone to undergo axial rotation, and in some instances the torsion may be so severe as to detach the cyst from its connections. Axial rotation occurs in connection with hydro-salpinx. The only specimen known to me occurred in the practice of my colleague, Mr. Henry Morris. I assisted at the operation, and was able to observe the condition thoroughly. The cyst is a typical hydro-salpinx; the fluid contents were of a chocolate colour. The portion of the tube intervening between the cyst and uterus was tightly twisted three times and a half. The cyst wall was adherent by strong adhesions to the adjacent parts of the meso-metrium and pelvic peritoneum, and it doubtless received its nutrient vessels from this source, for its relations with the bloodvessels which normally supply this part of the tube were thoroughly cut off.

Intermitting hydro-salpinx.—It has been stated on clinical evidence that the fluid in a hydro-salpinx may escape through the uterus, the blockade of the uterine end of the Fallopian tube being raised. Such a condition is termed "hydrops tubæ profluens," and the escape of fluid takes place at irregular intervals. Profuse discharges of pus and fluid occur in connection with pyo- and hydro-salpinx, accompanied by a diminution in the size of the tumour. Such are easily accounted for by the formation of fistula. There is no reliable pathological evidence that such discharges escape into the uterus by way of the Fallopian tubes.

Hydro-peritoneum and tubal disease.—It has been frequently pointed out that one important advantage accruing to the individual from occlusion of the abdominal ostium of the tube in septic salpingitis is great diminution in the risk of the inflammation extending to the peritoneum. Apart from this, even mild forms of tubal catarrh, not sufficient to give rise to fatal peritonitis, nor even severe enough to seal the ostium, may cause what is called hydro-peritoneum. Mr. Alban Doran has especially investigated this condition and discussed its probable causation in an admirable paper communicated to the Obstetrical Society of London. Hydro-peritoneum he defines as a collection of fluid in the peritoneal cavity which cannot be referred to any tangible organic disease. By this we may presume he means that the accumulation is not due to the ordinary causes of ascites, such as heart, liver, or renal disease. The definition is purely clinical; Mr. Doran is of opinion that hydro-peritoneum is caused by salpingitis of a mild type with

an unobstructed tube. It is easy to understand that the constant irritation caused by inflammatory products dripping from the tube into the peritoneal cavity would induce an exudation of fluid. The subject is one of some importance, and demands more attention than it has yet received at the hands of those who conduct post-mortem examinations. Its clinical import is obvious enough.—*Lancet, Dec.* 6, 1890, *p.* 1207.

84.—REMARKS ON THE SURGICAL TREATMENT OF UTERINE MYOMA.

By Lawson Tait, F.R.C.S., Professor of Gynæcology in Queen's College, Birmingham.

At the Cardiff Meeting of the British Medical Association (1885) I read a paper on the modern, and, as I ventured to add, the rational treatment, of myoma. (Vide *Retrospect*, vol. xcii., p. 392.) In that paper I first of all showed that the method of treatment of this disease by the removal of the uterine appendages is an operation with a very low primary mortality. I gave a detailed list of cases operated upon since January 1st, 1884, 58 in number, without a death. The series preceding that consisted of 50 cases, with two deaths. I have since published another series of 219 cases, with 4 deaths. The three make one series of 327 consecutive cases, with 6 deaths, giving a percentage of mortality of 1.8 per cent.—a mere bagatelle of risk, and far less than the mortality of any other serious operation in surgery.

The present series consists of 215 cases (219, less 4 deaths) whose lives have now extended, with a few exceptions, to a period of at least twenty months since the operation. The history of many of the cases would prove that this period is not long enough to decide in any case where the progress is unsatisfactory that it will ultimately prove a failure. In the great bulk of the cases the process of cure begins at once, and is practically completed within six months. This is true of at least 90 per cent. of the cases, whilst in about 6 per cent. of the cases the cure is protracted over a period varying from twelve to thirty-six months.

Of the whole series of 321, there are only five complete failures, that is, cases where the symptoms have been in no way relieved, and where the tumour has gone on growing, that is, the failure has been about $1\frac{1}{2}$ per cent. But so far as the evidence yet to hand goes, the fault lies not in the operation, but in the imperfect way in which it was done.

Three of these failures have already been submitted to hysterectomy, and in all of them I found I had removed the ovaries completely, but in all of them one tube had been incompletely removed. These cases go a long way to show that removal of the ovaries has nothing to do with the brilliant results of these operations for

bleeding myoma. As I have often said, in many cases I have deliberately left the ovaries, and yet success has been perfect.

Of incomplete or unsatisfactory results I have to indicate 5 cases. Two cases died respectively seven and eight weeks after their recovery and after leaving my care, the deaths being returned in both instances as due to typhoid fever. In one case (1,662) the patient died six months after the operation from the condition of extreme anæmia into which her hemorrhage had reduced her. The remaining cases (1,803 and 1,971), with unsatisfactory histories, are two which I fear might be put down as deaths due to the operation, if we knew the full facts of the endings. In the first case recovery from the operation was perfect, yet she died instantaneously—probably from heart clot—when on her homeward journey, and after she had been going about for nearly a week; and in the other, suppuration in the right inguinal region was the indirect cause of death seventeen months after the operation, and this probably originated indirectly from the operation.

This leaves 311 cases in which complete cures have been effected—that is to say, in which the symptoms have been satisfactorily relieved—where the tumour has either entirely disappeared or has so diminished or has been so satisfactorily arrested as to be no longer a source of anxiety or trouble, and where the main feature of the disease, exaggerated menstruation, has been completely and permanently arrested.

Upon the subject of the applicability of this operation—removal of the uterine appendages for the treatment of a certain class of uterine myoma—I have been in hesitation for some considerable time. At one time I had almost made up my mind that for the treatment of the soft œdematous variety it would not prove available, but I have had abundant proof of late years to alter that opinion. There can be no question that in young subjects removal of the appendages is as efficacious for the soft œdematous solitary variety as it is for the multinodular hard variety; and of the 5 cases in which failure has taken place, only 2 belong to the soft œdematous order; the other 3 belong to the multinodular. The only objection, however, that I find to the performance of this operation is the occasional difficulty of its completion, and this, of course, is a matter which will vary in the hands of different operators according to their individual expertness. One man will fail to remove the appendages in a case where another will succeed. There can, however, be no question that there will always be a certain proportion of cases in which removal of the appendages will be practically an impossibility. Looking over the list of cases in which I have performed hysterectomy during the period over which the present list extends, I think that the present proportion of cases where I have been unable to perform the operation of removal of the appendages, and have had to complete the case by

hysterectomy, amounts to about 4 per cent. In a considerable number of other cases I deliberately performed hysterectomy on account of the enormous size of the tumours, having the belief that the removal of the appendages in such huge masses would be almost as risky as removal of the masses themselves.

I have also deliberately performed hysterectomy in growing œdematous myoma where menstruation had ceased, as in such cases removal of the appendages was manifestly contraindicated.

Concerning the disappearance of tumours after the removal of the appendages and the arrest of menstruation, there can be no doubt whatever that the youth of the patient has a great deal to do with the activity of the process and the extent to which it is carried out. I cannot give the figures which will yield an exact indication of this result, but I think it may be very fairly expressed as follows: That under 40 years of age about 70 per cent. of the tumours entirely disappear. Between 40 and 45, as a rule, they do not disappear entirely, but become markedly diminished, and after 45 the diminution is only a shrinking, running between one-third and one-sixth of the bulk of the mass. There have been in my experience, however, remarkable exceptions to this latter conclusion, as I have seen a tumour much larger than an adult head disappear in a woman between 49 and 50 after the operation. The ages of many of the patients on the list will indicate very clearly the erroneous belief which exists in the professional mind that the approach of the age at which the menopause usually takes place gives anything like certain relief in cases of myoma, for no fewer than 9 of the cases were upwards of 50 years at the time of the operation.

A curious result was obtained in 3 of the cases during the process of cure, a result which might have been anticipated as likely to occur in a certain proportion of cases, but which came upon me as a surprise. It was that during the absorption of the tumour, a piece, which I assume had had an intrauterine existence as a polypus before the operation, came to be extruded as the accomplishment of that process became possible after the absorption of the main bulk of the tumour. The polypus, as it were, formed a remanet in the cavity of the uterus which could be extruded only after the walls had resumed their normal condition. When extruded it was easily removed in the ordinary way. In these three cases the hemorrhage went on persistently till the extrusion of the polypus and its removal, so that for some considerable time they all looked as if they would be failures. In one case (1,276), the patient has become a complete neurasthenic, but her tumour and the symptoms arising therefrom are completely cured. It may be that her neurasthenia is the result of the operation, but I know of no indication which justifies this conclusion. With one other exception, this is the only case in which nervous symptoms

have supervened to any serious extent since the operation. During the process of the climacteric several of my patients became queer for a short time—that is, they were eccentric and ill-tempered, but nothing was more marked in these respects than we often have in women during the normal change of life; in fact, I should say, on the whole, there has been a good deal less of this among these thirty women than if they had been going through the normal climacteric.

It may be in future, when the method of research which I have initiated in this particular operation is extended to others, that a very much enhanced value may be credited to a large number of our surgical proceedings; but, so far as we have gone, I think it would be very difficult indeed to bring forward instances in which it is at all likely that a higher value could be attained by any operation than in the present instance. The operation not only relieves but permanently and completely cures the sufferings of the disease against which it is directed, and I think it must be admitted as one of the most brilliant additions to modern surgery of which we have any knowledge. That there will be a number of cases of myoma for which it will be inapplicable I know already, but when it becomes the uniform practice to submit all cases of myoma requiring treatment to this safe, prompt, and effectual measure, and to apply the treatment in the early stages of the disease instead of losing valuable time in measures wholly ineffectual and far more dangerous, the number of cases requiring the more serious operation of hysterectomy will reach an almost vanishing point.

This series of cases also offers very abundant proof that the removal of the ovaries has nothing whatever to do with the question of the arrest of menstruation. Menstruation is a rhythmical process, and therefore clearly governed by a special nerve mechanism. Ovulation, on the contrary, does not seem to be a rhythmical process, but occurs at irregular periods, and probably therefore is no more the result of nerve influence than any other gland function, that is to say, there is probably no special nerve system governing it. In a great many instances where the ovaries have been completely removed menstruation has gone on perfectly regularly for many months, and in the list now submitted there are thirteen cases in which the ovaries were not removed at all, and five in which only one was removed; yet in sixteen out of the eighteen cases menstruation was immediately arrested, occurring only once in each instance after the operation, and in the other two cases it went on for about five and eight months respectively. In all cases the greatest care has been exercised to remove the Fallopian tubes completely.

I am now of opinion that it is not so much the removal of the tubes as the destruction of a nerve which lies between the tube

and the round ligament of the uterus, which is probably the efferent nerve governing the periodicity of the phenomena of menstruation. The evidence of the whole series is certainly entirely without exception in favour of the view which I have held almost ever since I began to study the question of the Fallopian tube as having more to do with the function of menstruation than the ovaries, that in fact the ovaries have nothing whatever to do with it at all, and the tube has this at least, it is the subject in which the initial phases of the phenomena occur.—*British Medical Journal, Nov.* 1, 1890, *p.* 1005.

85.—ON THE REMOVAL OF THE UTERUS FOR CANCER.

By Thomas Keith, M.D., F.R.C.S.,Ed.

The first time I performed vaginal hysterectomy for cancer was in the Edinburgh Infirmary in 1881. The same principles guided me then as now, except that I brought down the fundus of a very large uterus through the posterior opening, having first washed away thoroughly a quantity of putrid discharge that had escaped from the uterus into the vagina. This bringing down of the fundus is an unnecessary proceeding. I do not think that it helps the tying of the broad ligaments, and it may not be free from danger. I have not done this again. In this case, from the size of the uterus, the opening was very large, and ten horsehair sutures were needed to close it—one-half this number is generally sufficient. It is nine years since this operation was performed; there has been no symptom of return, and the patient is in the best of health.

I have often wondered why vaginal hysterectomy is so seldom performed in this country. It has for years been a recognised operation in America, in Germany, and in Italy, where it is frequently performed by the galvanic cautery. One reason may be that here it has fallen through between the surgeon and the gynæcologist. I am one of those who believe that we shall ere long see this operation, as well as all other abdominal work, pass into the hands of the regular surgeon, of one whose daily work it is to stop hemorrhage and close wounds. It was not till ovariotomy was undertaken by a hospital surgeon (then Mr. Wells) that confidence in that operation was established.

The total removal of the uterus for malignant disease must, as a rule, be a better operation than the partial removal of the organ. No one nowadays thinks of removing a bit of a cancerous mamma. To remove as much of the uterus as is possible without opening into the peritoneal cavity, and then to follow up the disease of the cavity by the free use of the cautery, seems to me to be monstrously bad surgery. If the disease be confined to the lips it may be sufficient to stop at the internal os, but even this is not free

from some danger. I have again and again opened into the peritoneum in my early efforts, though I have not seen any harm arise from this.

A few weeks ago I saw a lady in whom this accident happened, and on whom I operated nearly ten years ago. She had already been operated on several times before I saw her, and she is one of the few who have kept well. Now, I would never hesitate between the partial and complete removal, for from all we know there may be cancerous nests in the very fundus, even though the disease may seem to the eye quite local and limited. On this point it is refreshing to have the opinions of the German surgeons at the international meeting at Berlin in August last; Martin, Hegar, Olshausen, and many others gave no uncertain sound. Be the method of operation what it may, the great thing is that the principle of operation for total extirpation of a cancerous uterus is now established. There is no difficulty in the operation. It requires care, and there is seldom any trouble in applying the ligatures. There seems to be no reason why it should be attended with a large mortality. Its immediate risks are not great. I have not yet had the misfortune to lose a patient after it.

The two things to be attended to are the careful stopping of all bleeding, and the most rigid antisepsis or cleanliness, as some call it. Drainage is not necessary; indeed, there is little to drain if the wound be carefully closed, and it should be as carefully closed as any other abdominal wound. I prefer strong horsehair to anything I know. These sutures cause no irritation; they may remain in any length of time, and are easily removed. Possibly catgut may be better, but I have had a long experience of horsehair, and am satisfied with it. Many years ago an old medical friend came for me in haste to stitch up a badly torn perineum and rectum in the case of a lady whom he had just delivered by forceps. Some weeks after he called to tell me that she had done well, and was leaving town that afternoon. I asked when he had taken out the stitches; there were seven or eight of them. He had never thought of them, for he supposed I had used catgut sutures. He made some excuse for making an examination before she left, but he found no trace of the sutures, and he has confined her since without accident.

The practice of securing the broad ligaments by strong locking forceps, or even by specially constructed clamps, and letting these remain on for some days, or till they drop away of themselves, does not commend itself to me as good surgery; neither do I care to use the cautery. The chief risk of this operation arises probably from hemorrhage, and death from hemorrhage is not infrequent when the cautery is used. The reason of this is that the action of the cautery must be incomplete, there being no room to apply pressure behind the cauterised parts. The simple way to do this operation

is to do it with scissors, to go as wide of the disease as the bladder or ureters will permit, to stop all bleeding and oozing, and to close the wound carefully, uniting peritoneum and all the structures. Some are cured, or die years after of other diseases; and when death does come from a return of the disease, it comes in a milder and less terrible form, generally from some intraperitoneal affection. The misery of the spreading of the disease on to the vagina and outwards, and opening into the bladder and rectum, is generally saved to the patient and her friends.

It need not be added that discrimination in selecting cases for operation is absolutely necessary. Unfortunately, the number who are alarmed in the curable stage is few, for the symptoms of the beginning of cancer of the uterus are unknown to, and are thus overlooked by, the patient. Her attention is rarely drawn to symptoms before the disease is past surgical interference. Operated on at an early stage, uterine disease will show results not much inferior to operations for cancer in other parts of the body. —*British Medical Journal, Jan.* 10, 1891, *p.* 58.

86.—ON LIFE-SAVING METHODS IN STILL-BIRTHS.

By William T. Lusk, M.D., Professor of Obstetrics, New York.

The indications for treatment are in all cases to clear out the air-passages, to restore the irritability of the medulla, to increase the force of the heart contractions, and to relieve the plethora of the heart and of the blood-channels of the thorax.

In cases where the muscular tonus is preserved these indications are, as a rule, easily fulfilled; aspirated fluids and mucus should be cleared from the fauces with the finger. If the nasal passages are obstructed, mouth-to-mouth insufflation should be employed. The child should be made to cry by flagellation, and the respiratory movements should be further stimulated by alternately immersing the child in hot and cold water. So far the procedure is a familiar one, but in a good number of cases we know that in a few days the skin becomes dusky, the heart action feeble, and the child has been temporarily restored to life only in the end to die of atelectasis. As a means of guarding against this fatal sequence, due in part to imperfect expansion of the lungs, in part to lobular congestion, there is no method that rivals the one of Schultze.

Schultze directs that the child should be grasped in such a manner that the operator's thumbs rest, on either side, upon the anterior thoracic wall, while the index-finger occupies the axilla, and the remaining fingers are placed diagonally across the back. The child is then allowed to hang at arm's length between the knees of the obstetrician, its face being turned to the front. In this position the pectoral muscles are made to draw the superior ribs upward, the abdominal muscles draw the inferior ribs downward, and the

weight of the liver causes the descent of the diaphragm. By this means the capacity of the chest is increased and inspiration is produced. The child is next swung upward, until the arms of the operator reach an almost horizontal position. The swinging motion is then arrested, flexion occurs in the child's lumbar spinal region, its head is directed downward, and its lower extremities fall slowly toward the obstetrician until the whole weight of its body rests upon his thumbs. In this way the chest and abdomen are powerfully compressed, the diaphragm is forced upward, and an efficient expiration results, and any retained adventitious matters are expelled from the air-passages. An inspiration is now produced by reversing the direction of the swing and returning the child to its former position of complete extension, by which manœuvre the chest is made to expand and the diaphragm to descend.

By this method not only is good aëration of the lungs secured, but the forcible expiration expels the materials aspirated from the bronchial tubes. A still more important action, according to Schultze, is the relief of the overloaded vessels as a result of the compression of the entire thoracic contents. Thus, as expiration is produced by the upward swing the blood is pressed from the left ventricle into the aorta, and from the right auricle into the right ventricle. The emptying of the left ventricle makes room for the contents of the left auricle and permits the return current from the pulmonary veins. From the right ventricle the surplus blood finds a passage into the aorta through the ductus arteriosus. With the inspiratory swing blood is aspirated from the peripheral vessels into the blood-channels of the thorax. The aspirated blood is, however, venous, as the semilunar valves prevent regurgitation from the aorta. By alternating the expiratory and inspiratory swinging movements the pump-working of the heart is mechanically set in action. As the blood-streams pass through the heart cavities the systole increases in force and the arterial tension is restored.

In cases of deep asphyxia, in which muscular tonicity is lost, and the heart movements are scarcely perceptible, the methods at first employed should involve the minimum degree of disturbance to the child. Active movements are, as a rule, speedily followed by the extinction of heart pulsations.

The child should be laid upon a table and covered warmly. After clearing the fauces and nasal passages a No. 8 English elastic catheter should be passed under the guidance of the fingers of the left hand through the larynx into the trachea, and aspirated matters should be carefully removed by suction. This often requires time and the repeated introduction of the tube. Meantime, at intervals, insufflations through the tube into the bronchial tubes should be employed. After each insufflation the chest walls should be compressed with the hand to produce expiration. By this means, little by little, the blood receives oxygen, and the returning irritability

of the medulla is manifested by occasional spontaneous respiratory movements. Then the Sylvester's method, which Champneys has shown is followed by the fullest expansion of the air-cells, is of service. Only, to secure favourable results it is often necessary to draw the tongue well forward. So soon as the heart movements become plainly perceptible the child should be placed in warm water, and sprinklings of cold water upon the face should be practised. Finally, the swinging method of Schultze should be employed to complete the establishment of the normal circulation.

But in these cases of deep asphyxia no miracles are to be wrought without patience, watchfulness, and a hopeful spirit. Often, when a certain amount of progress has been obtained, the heart action begins to die out, and we find ourselves obliged to go back to the catheter and insufflations anew.—*American Journal of Medical Sciences, Feb.* 1891, *p.* 114.

87.—ON HOT WATER FLUSHING OF THE UTERUS AFTER DELIVERY.

By Alexander Duke, F.R.C.P.I., Ex-Assistant Master, Rotunda Hospital; Gynæcologist to Steevens' Hospital, Dublin.

In every case of labour I now attend I make it a rule to wash out the uterus (at once when the placenta has been expelled either by expression or by the natural efforts) with hot water. The advantages claimed are these: (1) General stimulant to the patient; (2) produces contraction of uterus; (3) removes shreds of membrane, clots, &c.; (4) prevents after-pains; and last, but not least, sets the practitioner's mind at rest by ensuring a permanent contraction of the uterus, and the certainty of knowing when the water returns clear of leaving a clean and untainted uterine cavity. The facility with which a uterus can be washed out directly after labour is a strong argument in favour of the proceeding. When attempted forty-eight hours later it will be found much more difficult, and not nearly so effective. In several cases that I observed while assistant physician to the Rotunda Hospital, the rise in temperature suggestive of puerperal fever was found to be entirely due to the retention of a portion of membrane or placenta in utero, as the washing out with hot water proved. Nothing can be more mischievous than the plan adopted (I regret to say by most midwives)—viz., that of "making a rope of the membranes"; and I am sorry to see this has not been condemned by any of the text-books on midwifery or nursing manuals with which I am acquainted. The fact of rotating the placenta when extruded (or partially so) brings on a uterine contraction, and on the membranes being tightly grasped by the os and cervix (though unseen), the twisting is continued till the membranes break off, a portion being left behind, giving rise to after-pains, which when not sufficient to

expel the offending cause become an undoubted source of danger to the patient by decomposition, as shown by the extreme rise in temperature, rigors, &c. I am so convinced of the value of washing out the uterine cavity with hot water (previously brought to boiling point), that I hope I shall be excused for saying that, in my opinion, it should be made a routine treatment in all cases of labour, whether in hospital or in private practice. The little additional trouble involved by this proceeding will amply repay the practitioner who adopts it, and who will, if wise, not trust it to the hands of the nurse. It is remarkable how suddenly the high temperature falls, and the dangerous symptoms vanish, when a decomposing piece of membrane (often of considerable size) has been washed out. The hastening of involution by the cleansing and stimulating effects of plain hot water is most satisfactory.—*Lancet, Jan.* 24, 1891, *p.* 193.

88.—ON CÆSAREAN SECTION FOR RELIEF OF IMPACTED LABOUR, AS A SUBSTITUTE FOR CRANIOTOMY.

By Murdoch Cameron, M.D., Obstetric Physician to the Glasgow Maternity Hospital.

[Dr. Cameron gives in tabular form the chief points in Ten Cases of Cæsarean Section, performed by him between January, 1889, and the date of publication. Nine mothers recovered, and one died forty-eight hours after the operation. Ten living children were delivered and survived; one child had been dead for several hours at the time of the operation. The twins both of them surviving, were delivered from the mother who died. The Fallopian tubes were tied in five of the cases, all recovering.]

In considering the treatment of cases of obstruction, our decision should be based upon the degree of contraction of the pelvis, the size of the child's head, and its reducibility—unless the obstruction be due to some other cause, such as cancer or the presence of a tumour in the pelvic cavity.

Every practitioner should be able to form a fair estimate of the amount of contraction, as it is easier to measure a contracted pelvis than a normal one, and, therefore, I hold that it does not require a highly skilled obstetrician to say before labour has begun, or during the early stage of the process, that the diameter of the pelvis is, or is not, less than three inches, and that as a matter of fact such a pronouncement is within the skill of the ordinary practitioner. Further, I will assert that the general practitioner must, in the practice of midwifery, be more than a generally useful person, otherwise he will sink to the level of an ignorant midwife. Not only must he be able to form an estimate of the amount of contraction, but, by the patient study of normal cases, qualify himself to form an opinion as to whether it will be impossible for

a living child to pass, and also whether, under the circumstances in which he may be placed, it would not be wiser to send the patient where Cæsarean section could be safely performed than to extract a mutilated fœtus through a minimum diameter.

Upon the skill of the medical man who first sees and examines such a case will always rest the fate of the patient, as a surgeon, however well qualified to perform a Cæsarean or Porro operation, will not assume the responsibility of deciding whether the case could be terminated by forceps or that abdominal section should absolutely be performed. For instance, only recently I had two cases within a few days of each other, both with a conjugate diameter of about 3 inches; but in the one case the child weighed nearly 9 lbs., whereas the other was, if anything, smaller than normal. This shows clearly that much depends on the size of the fœtus, as with the smaller and more compressible head there is less danger of impaction, and frequently these conditions allow spontaneous termination, even where the measurements of the pelvis indicate instrumental aid. Such conditions call for our best attention, for, with a diameter of from one to two inches, where engagement of the head is impossible, no one would hesitate to advise abdominal section, although there will always remain cases —such as where the child is dead or a subject of hydrocephalus— in which craniotomy will be restored to.

It is only the skilled practitioner or obstetrician who, influenced by principles and principle, can under such circumstances give an opinion worth having, as such men do not allow a love of novelty, a thirst for notoriety, or a fit of heroics to interfere with their better judgment. Experience alone will enable one to avoid extreme measures in cases with a conjugate measuring more than three inches, and where, by inducing labour near the eighth month, it may be possible to extract a living child through the natural passage. Where the diameter is much under three inches, the child can only be saved by section.

There can be no questioning that abdominal section is a highly dangerous operation, but the danger in most part depends on delay, and death frequently results not so much from the operation as from previous operative abuse. Success depends on prompt interference before the patient is exhausted, as then there is less danger from hemorrhage, delayed shock, or peritonitis.

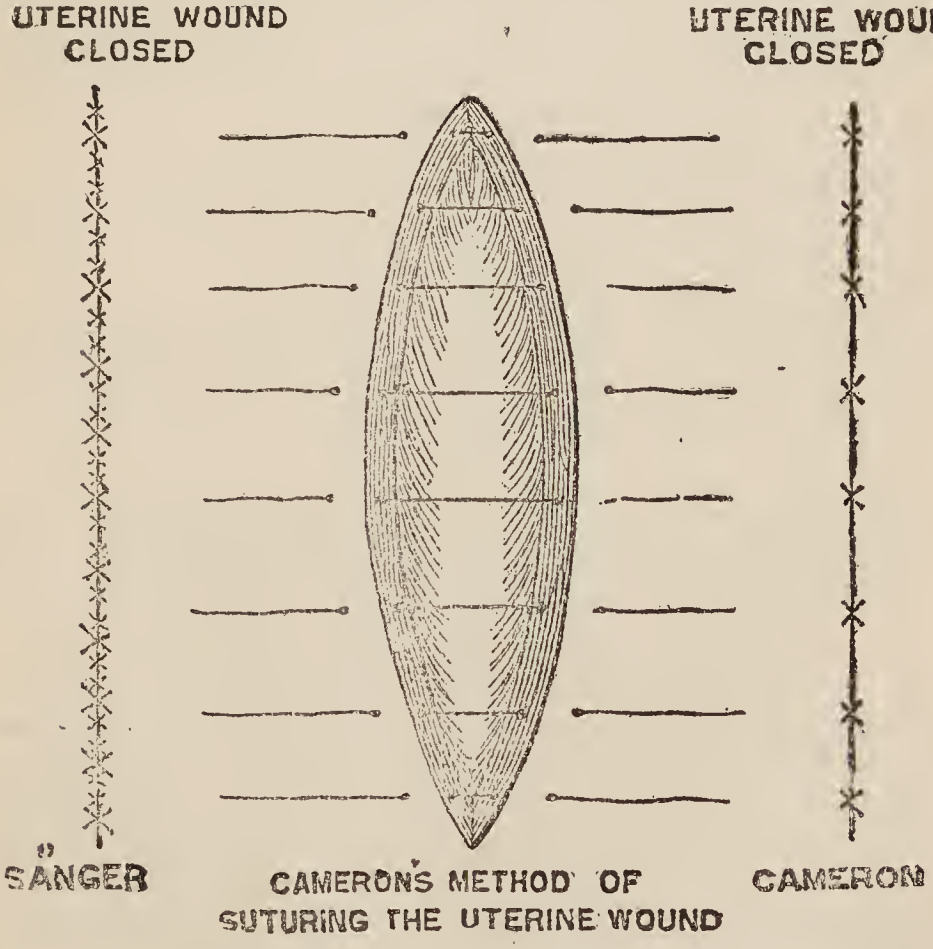
When section has been resolved upon another question presents itself, namely, whether Cæsarean section or Porro's operation is preferable. If the former, there still remains to be decided whether the operation will be accompanied or followed by the removal of the ovaries, or the patient be sterilised by the simple expedient of tying both Fallopian tubes. In my last two cases this was done and no harm has resulted, although textbooks would lead us to believe that such a procedure would be surely followed by retro-

uterine hæmatocele, resulting from the effusion of blood from the Graafian follicles.

Personally, I am in favour of Cæsarean section where the patient is seen early, and where, I might say, there is a choice of operation. Under such circumstances section is safer for the patient, and offers very little difficulty to the operator, who can readily combat any complication such as hemorrhage.

Upon opening the uterus, the operator and his assistant can prevent loss of blood by simply placing each a finger along the cut surface. When the membranes are exposed the utmost care should be taken to prevent rupture of them, as they keep the uterus fully distended. By so doing the wound is smaller after the removal of the child when the uterus has contracted, than if the child had been extracted through a partially contracted uterus from which the liquor amnii had previously escaped.

I can quite understand how one could be driven to any extreme in the case of profuse bleeding if the precaution was not taken immediately after the child was extracted to place the cut surfaces in apposition, and to press them tightly together till you are ready to extract the placenta, and immediately after it has been extracted,



again to press the cut surfaces together and hold them so, whilst

the uterus is everted and stimulated to contract by gentle kneading. Only after this has been done is it safe to introduce the stitches. The uterus answers readily to friction, and then deep sutures can be easily inserted without fear of further bleeding. I am of opinion that the use of an elastic band induces inertia, and so gives rise to hemorrhage on its removal; besides, it induces asphyxia in the child. If treated as I have indicated, there should be no more danger from bleeding than in a normal delivery.

Unless the child had been dead for some time, I should be opposed to any interference with the uterine cavity by medication, the application of tampons, vaginal drainage tubes, &c., as such are needless and a source of danger. There is great difference of opinion regarding the method of closing the uterine wound. Some, following Sänger, apply from twenty to thirty or even more deep and superficial stitches, whilst others—myself among the number—simply insert from seven to twelve deep stitches, and reserve superficial sutures for any points where it might be thought advisable to use them. In both instances antiseptic silk could be used, although I prefer gut for the superficial ones.

Concerning the time for operation, I am opposed to interference before labour has commenced, as there would certainly be a greater chance of post-partum hemorrhage than if performed after labour had commenced, when the uterus contracts more readily upon being emptied. Speed in operating is an important factor, as a long exposure is likely to induce death from shock.

Porro's modification I am inclined to reserve for cases where the uterus has been injured or ruptured by violent and vain attempts to extract the fœtus by the natural passage.

In prolonged labour where no injury has been inflicted, I would still prefer Cæsarean section, as done in my third case, in which the liquor amnii had escaped two days before operation.—*British Medical Journal, March* 7, 1891, *p.* 510.

89.—ON A MODIFICATION OF HYSTERORRHAPHY FOR CHRONIC SENILE PROCIDENTIA.

By A. D. Leith Napier, M.D., M.R.C.P., Physician-Accoucheur St. Pancras and Northern Dispensary.

The practical requirements for successful ventral uterine fixation are—to heal erosions and ulcerations, and reduce the size and weight of the uterus before attempting fixation. So far as practicable, vaginal prolapse must be corrected by astringent douches—for example, oak bark, quebracho, &c. The uterus should be temporarily supported by a pessary; above all, hyperplasia must be corrected by rest in the horizontal position. As a lesser operation, perineorrhaphy, with or without colporraphy, may be first tried, especially in cases where rectocele or cystocele is a marked

complication. Despite all these measures, a few cases will be found to require something more. Unless a trial of shortening the round ligaments is made, ventral fixation of the uterus is the only radical cure.

For chronic senile procidentia, the following procedure seems to me likely to become more generally used than any hitherto employed:

Operation.—The uterus is well returned within the vagina; then, by means of a broad-pointed sound-like repositor, it is pressed up against the abdominal peritoneum. A short incision is made in the mid-line through the superficial and deep abdominal layers down to, but not through, the peritoneum. A narrow curved needle, with a fairly large eye, of Hagedorn's pattern, and fixed in a long firm handle, is introduced *per vaginam*, and brought out through the right side of the uterus and through the exposed abdominal peritoneum. The needle is threaded with strong silkworm gut or reindeer tendon, or silver wire, from the abdominal side; the needle is withdrawn through the same puncture, the thread is drawn through, and the lower end brought into the vagina. The ends of the suture are fixed with catch forceps. The needle is disinfected, then reintroduced, and made to pass through the left side of the uterus and the abdominal peritoneum covering it; the needle is threaded as before, and, on being withdrawn, brings the left side thread into the vagina. There are now two single threads or two free ends inferiorly, with a loop on the abdominal aspect; the latter should be divided, and the ends fixed with forceps. The forceps on the vaginal ends of the sutures are removed, and on each suture a small, stout flattened ovoid glass disc, with rounded edges, or a plate of decalcified chicken bone is slipped. A little manipulation may be needed to get the discs through the cervix. As a rule this can be managed by steadying the uterus, if need be, by volsellæ, and then guiding the discs sideways by forceps, or by gentle traction on the abdominal ends of the sutures. Before tightening the sutures, care must be observed that the intrauterine repositor maintains the fundus uteri in close apposition to the abdominal peritoneum. The sutures are now drawn tight from the abdominal ends till both discs are closely applied to the inner uterine wall; the operator should be able to lift up the uterus by means of the threads. If the uterus is unduly large, or if there is any doubt about the position or strength of the sutures, a third or fourth disc may be introduced in the manner already described, but this will seldom be necessary. The abdominal ends of the sutures are now threaded in an ordinary Hagedorn's needle, and passed through the muscular layers of the abdomen; discs of bone or glass may be slipped on, and the sutures secured and buried. At times the sutures from the opposite sides are tied together and then buried. The intra-

uterine repositor is withdrawn. (Two deeply buried silk-worm gut stitches, including the whole thickness of the uterine wall, but not passing through the endometrium, may be used to further connect the uterus with the abdominal muscles. These latter stitches are only to be used when the uterus is large and heavy). The abdominal wound is closed. The vaginal ends of the sutures are not cut short, but allowed to remain as drainage tubes for ten days. The vagina is packed with antiseptic tampons for a fortnight. If the sutures are not loosened by the end of a fortnight, they are cut off at the level of the os. The patient should be kept in bed for three weeks after operation, and, in a considerable proportion of cases, it may be desirable that a pessary should be worn for two or three months after getting up. In event of retro-uterine adhesions, it may be necessary to open the peritoneal cavity and break these down. If this has to be done, a strip of uterine peritoneum should be dissected off by scissors and the uterine surface stitched to the parietal peritoneum, as practised by Caneva, of Milan, and many others. This should be done after the intrauterine sutures have been passed, but before they are tightened.

The advantages claimed for this operation are —

(1) It gives more secure and reliable fixture than any other.

(2) The time occupied in performing the disc operation is much shorter than in plastic methods.

(3) Sufficient adhesive peritonitis is induced to warrant belief that, after the absorption of sutures (if destructible sutures are employed), the uterus will retain its relations to the abdominal wall.

(4) The risks of bleeding are *nil*. The risks of septic absorption from the thread passing through the uterus are practically *nil*; fluid matter will come down into the vagina, and the sutures, passing through the substance of the uterus with the closely applied discs, block the uterine end of the suture tract, and prevent passage of fluid into the peritoneal cavity.

(5) The operation is much easier than a plastic method. Any operator conversant with the uterine sound can do all that is needed.

I believe that strands of glass threads might make an excellent and imperishable suture, pliable as silkworm gut, non-irritating, and more durable than silver.

In senile uteri, the small glass discs do no harm; probably they pass out in course of time. In younger women, chicken-bone plates (like Senn's intestinal plates) should perhaps be preferred. They may pass out or become absorbed. The adhesions produced may also become absorbed. But if the uterus is kept well up for a time and the vaginal walls regain tonicity, the procidentia will be found cured, even if time destroys the adhesions and absorbs the sutures.—*British Medical Journal, March* 7, 1891, *p.* 516.

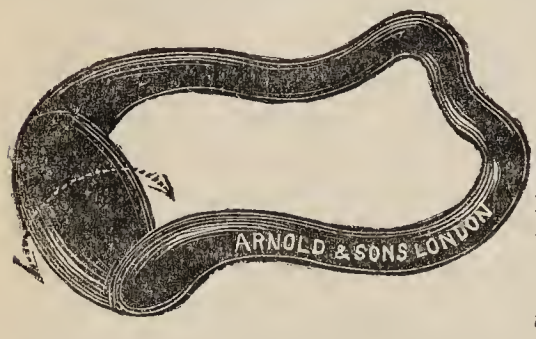
90.—ON THE CAUSES AND TREATMENT OF POST-PARTUM HEMORRHAGE.

Schauta (*Prager medicinische Wochenschrift*) writes of the treatment of post-partum hemorrhage in a practical and interesting manner. In seeking for the cause of hemorrhage, the practitioner must remember that while atony of the uterus is the most frequent cause, yet others may be present of equal importance. Such are failure of the uterine muscle properly to retract and close the mouths of the uterine sinuses; dilatation, degeneration, and atheroma of the blood-vessels of the uterus; retained portions of placenta; lacerations of the genital tract opening blood-vessels; varicose veins which have been ruptured during labour; bleeding from rupture of the uterus at the lower uterine segment; tumours, especially myomata and carcinomata, which become bruised and lacerated during labour. In the treatment of these cases it is essential that the placenta be delivered in such a manner as best to avoid uterine relaxation and hemorrhage. Schauta wisely advises that no effort be made to express the placenta during the first half-hour following delivery; he would even adopt Ahlfeld's suggestion, and allow two or three hours to elapse before removing the placenta manually. The Credé method is preferred when expression is possible. In the treatment of hemorrhage caused by uterine atony, uterine massage is indicated and also hot douches; these are best given of sterilised water, or of some antiseptic solution, bichloride of mercury not being considered applicable in these cases. Ergotine may be given by hypodermic injection; the intra-uterine application of styptics is strongly condemned. The intra-uterine tampon of iodoform gauze is warmly commended, and has given none but good results in Schauta's hands. In cases where a hemorrhage is persistent and severe, the blood coming from degenerated vessels in the site of the placenta, it may be necessary to adopt a procedure advised by Kocks. This consists in inverting the uterus as soon after the birth of the child as possible, and applying an elastic ligature about the cervix. In addition, iodoform gauze may be used as a tampon. After six hours the elastic band may be removed and the uterus replaced. When hemorrhage results from retained portions of placenta, the thorough exploration of the uterus and the removal of such portions will promptly check the hemorrhage. Hemorrhage from lacerated wounds in the genital tract is best controlled by suture, or ligature, or by a gauze tampon. In the treatment of the anæmia following hemorrhage, the transfusion of dilute saline solutions is especially commended. Schauta describes a case where, after laparotomy, severe hemorrhage resulted; four hours after the operation the abdomen was again opened, and large clots and fresh blood were found. The hemorrhage was checked, and the threatening anæmia of the patient was relieved by transfusion with salines. —*American Journal of the Medical Sciences, March* 1891, p. 319.

91.—ACCOUNT OF A NEW FORM OF UTERINE SUPPORT, OR ROLLER PESSARY.

By Dr. More Madden, of Dublin.

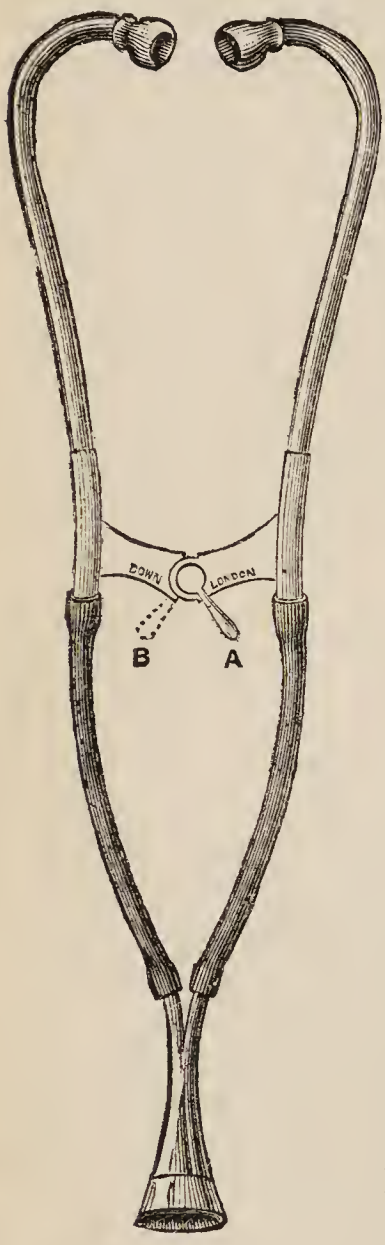
At the Royal Academy of Medicine in Ireland, on March 13, 1891, Dr. More Madden said the difficulty of ensuring the retention *in situ* of any of the ordinary forms of uterine pessary commonly employed is one of the most frequent troubles met with in gynæcological practice. With the view of obviating this difficulty, he has recently suggested to Messrs. Arnold, of London, the idea which they have very satisfactorily carried out in the Roller Pessary which he now exhibited. The advantages claimed for this instrument are—first, greater facility of introduction, which in the roller pessary is favoured by the rotation of the upper arm of the support; secondly, greater certainty of filling the post-cervical *cul-de-sac*, and so overcoming the tendency of the displaced organ, whether it be the uterus or the ovary, to descent therein; thirdly, the obviation of the constant pressure occasioned by the ordinarily-used pessary; and fourthly, the circumstance that the new support affords no fixed point or shelf for the deposit of discharges or septic matter. Moreover, there is another, and, as he believed, a still more important advantage connected with the rotatory movement of the upper arm of this instrument—namely, a greatly diminished risk of the pessary slipping out of its place. In nine cases out of ten that accident results from the expulsive efforts of the patient to dislodge a mass of hardened fæces from the upper rectum. Such a displacement of the roller pessary is prevented by the rotatory action of its upper arm, by which the support is made to travel slightly upwards instead of being forced downwards, as in other pessaries, by the fæcal pressure through the recto-vaginal walls. The instrument in question is applicable in all cases of posterior displacements of the uterus, and also in those less generally recognised, but not less important, instances of ovarian prolapse into Douglas's fossa.



Dr. More Madden also exhibited a new instrument for intra-uterine work, combining the action of the ordinary curette with that of a tenaculum. In this instrument the desired action, either as a curette or as a tenaculum, can be exactly and easily regulated and directed from without by a peculiar form of screw adjustment worked from the handle.—*Dublin Medical Journal, April*, 1891.

New Instruments, Drugs, and Food Stuffs.

DOWN BROS.' PATENT BINAURAL STETHOSCOPE.—Messrs. Down Brothers, of 5 and 7, St. Thomas' Street, London, have submitted to us their New Binaural Stethoscope, constructed after a pattern suggested by Dr. George Herschell. We have made extensive trial of the instrument, and fully appreciate the advantages it possesses over its predecessors. The chief advantage is that the elastic band or spring which always did too much or too little in keeping the ends of the instrument applied to the external meatus, is replaced by an ingenious clamp-arrangement, by which the ear-pieces when properly adjusted are kept in position by moving a small lever, entirely under the control of the observer, and actuated by the lightest touch of the finger. When the lever is in the position A (see Fig.) the hinge is loose, and the instrument can be applied to the ears, and adjusted to press as lightly or as heavily as desired; the lever being then moved into the position B, the instrument is fixed and remains in position; it can then be easily removed from the ears and closed without again touching the lever. In this all unpleasant pressure on the one hand, or inefficient apposition on the other, of the ear-pieces, is completely avoi ded. In other respects the instrument is light and beautifully finished, and a distinct advance upon many of the forms of binaural stethoscope at present in use.



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Cadbury's Cocoa Essence.—The supreme value of Cocoa as a pleasant and invigorating beverage is being more generally recognised. The dietetic value of cocoa has long been widely known, but the large quantity of fat present in it made the beverage too rich and heavy for ordinary stomachs, and this seriously checked its consumption. Of late years by improved methods of manufacture two-thirds of this rich and valuable, but not easily digested oil has been removed, and now it is rare to find anyone who cannot relish and digest it. We do not know any preparation of pure cocoa superior to that of Cadbury Brothers; it is absolutely pure, containing no sugar, starch, or other foreign ingredient, and its purity and aromatic flavour are its chief recommendations. But we regret to find that the English market is being flooded with foreign medicated cocoas, brands to which considerable quantities of alkalies have been added by the makers in order to make a soap as it were with water. Pure cocoa is not soluble in water; it is merely suspended, and to overcome what some people regard as a drawback alkalies are often freely added. In spite of this free admixture of alkalies the cocoa has still a decided tendency to be precipitated. To Cadbury Brothers is unquestionably due the credit of making nothing but absolutely pure preparations, so that their brands are the best for invalids and for ordinary use, and their well-known *Cocoa Essence* stands absolutely alone in the market.

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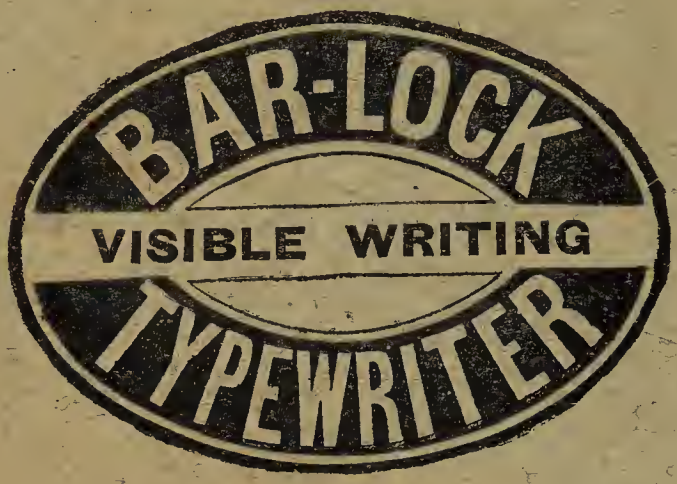

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